For the reasons set out in the preamble, title 40, chapter I of the Code of Federal Regulations is amended as follows:

PART 90–CONTROL OF EMISSIONS FROM NONROAD SPARK-IGNITION ENGINES

1. The authority citation for Part 90 continues to read as follows:

Authority: Sections 203, 204, 205, 206, 207, 208, 209, 213, 215, 216, and 301(a) of the Clean Air Act, as amended (42 U.S.C. 7522, 7523, 7524, 7525, 7541, 7542, 7543, 7547, 7549, 7550 and 7601(a)).

Subpart A - General

2. Section 90.1 is amended by adding paragraphs (b)(6) and (d) and by revising paragraph (c) to read as follows:

§90.1 Applicability.

* * * * *

(b) * * *

(6) Engines that are used exclusively in emergency and rescue equipment where no certified engines are available to power the equipment safely and practically, but not including generators, alternators, compressors or pumps used to provide remote power to a rescue tool. The equipment manufacturer bears the responsibility to ascertain on an annual basis and maintain documentation available to the Administrator that no appropriate certified engine is available from any source.

(c) Engines subject to the provisions of this subpart are also subject to the provisions found in subparts B through N of this part, except that subparts C, H, M and N apply only to Phase 2 engines as defined in this subpart.

(d) Certain text in this part is identified as pertaining to Phase 1 or Phase 2 engines. Such text pertains only to engines of the specified Phase. If no indication of Phase is given, the text pertains to all engines, regardless of Phase.

3. Section 90.3 is amended by revising the section heading and adding the following definitions in appropriate alphabetical position to read as follows:

§ 90.3 Definitions and Abbreviations.

* * * * *

Aftertreatment means the passage of exhaust gases through a device or system such as a catalyst whose purpose is to chemically alter the gases prior to their release to the atmosphere.

* * * * *

Commercial Engine means a handheld engine that is not a residential engine.

DF or df means deterioration factor.

Eligible sales or U.S. sales means Phase 2 engines sold for purposes of being used in the United States, and includes any engine exported and subsequently imported in a new piece of equipment, but excludes any engine introduced into commerce, by itself or in a piece of equipment, for use in a state that has established its own emission requirements applicable to such engines pursuant to a waiver granted by EPA under section 209(e) of the Clean Air Act.

* * * * *

Family Emission Limit or FEL means an emission level that is declared by the manufacturer to serve in lieu of an emission standard for certification, production line testing, Selective Enforcement Auditing, and in-use testing for engines participating in the averaging, banking and trading program. An FEL must be expressed to the same number of decimal places as the applicable emission standard.

* * * * *

HC+NOx means total hydrocarbons plus oxides of nitrogen.

In-use credit means an emission credit that represents the difference between the mean in-use emission results of a regulated pollutant, CO, HC+NOx or NMHC+NOx, and the applicable certification emission standard. In-use results below the standard lead to the calculation of *positive in-use* credits, while in-use results above the standard lead to the calculation of *negative in-use* credits.

* * * * *

NMHC+NOx means nonmethane hydrocarbons plus oxides of nitrogen.

* * * * *

Overhead valve engine means an otto-cycle, four stroke engine in which the intake and exhaust valves are located above the combustion chamber within the cylinder head. Such engines are sometimes referred to as “valve-in-head” engines.

Overhead valve emission performance, or OEP, engine means a Class II overhead valve engine, or a Class II non-overhead valve engine that complies with the applicable 2005 model year emission standards without using emission credits.

Phase 1 engine means any handheld or nonhandheld engine, that was produced under a certificate of conformity issued under the regulations at this part and that is not a Phase 2 engine.

Phase 2 engine means any handheld engine as defined in this subpart that is subject to the

standards that begin to phase-in in the 2002 model year; and any nonhandheld engine as defined in this subpart of the 2001 model year or later including those 1999 and 2000 model year engines certified under early banking provisions described in this part. Any engines exempted from the Phase 2 standards under this part are excluded from coverage under this definition.

* * * * *

Residential engine means a handheld engine for which the engine manufacturer makes a written statement to EPA as part of its certification application that such engine and the equipment it is installed in by the engine manufacturer, where applicable, is not produced, advertised, marketed or intended for commercial or professional usage.

Round, rounded or rounding means, unless otherwise specified, that numbers will be rounded according to ASTM-E29-93a, which is incorporated by reference in this part pursuant to §90.7.

* * * * *

Side valve engine means an otto-cycle, four stroke engine in which the intake and exhaust valves are located to the side of the cylinder, not within the cylinder head. Such engines are sometimes referred to as "L-head" engines.

Small volume engine family means any handheld engine family whose eligible sales in a given model year are projected at the time of certification to be no more than 2,500 engines; or any nonhandheld engine family whose eligible sales in a given model year are projected at the time of certification to be no more than 1,000 units.

Small volume engine manufacturer means, for handheld engines, any engine manufacturer whose total eligible sales of handheld engines subject to regulation under this part are projected at the time of certification of a given model year to be no more than 25,000 handheld engines; and, for nonhandheld engines, any engine manufacturer whose total eligible sales of nonhandheld engines are projected at the time of certification of a given model year to be no more than 10,000 nonhandheld engines.

Small volume equipment manufacturer means, for handheld equipment, any equipment manufacturer whose production of handheld equipment subject to regulation under this part or powered by engines regulated under this part, does not exceed 5000 pieces for a given model year or annual production period excluding that equipment intended for introduction into commerce for use in a state that has established its own emission requirements applicable to such equipment or engines in such equipment, pursuant to a waiver granted by EPA under section 209(e) of the Clean Air Act. For nonhandheld equipment, the term "small volume equipment manufacturer" has the same meaning except that it is limited to 2500 pieces rather than 5000.

Small volume equipment model means, for handheld equipment, any unique model of

equipment whose production subject to regulations under this part or powered by engines regulated under this part, does not exceed 2500 pieces for a given model year or annual production period excluding that equipment intended for introduction into commerce for use in a state that has established its own emission requirements applicable to such equipment or engines in such equipment, pursuant to a waiver granted by EPA under section 209(e) of the Clean Air Act. For nonhandheld equipment, the term "small volume equipment model" has the same meaning except that it is limited to 500 pieces rather than 2500.

Technology subgroup means a group of engine families from one or more manufacturers having similar size, application, useful life and emission control equipment; e.g. Class III, residential, non-catalyst, two stroke engine used in generator set applications.

*** * * * ***

Subpart B -- Emission Standards and Certification Provisions

4. Section 90.103(a) is amended by revising paragraph (a) introductory text, and paragraphs (a)(3) and (a)(5) and by adding paragraphs (a)(6) through (a)(9) to read as follows:

§90.103 Exhaust emission standards.

(a) Exhaust emissions for new Phase 1 and Phase 2 nonroad spark ignition engines at or below 19 kilowatts (kW), shall not exceed the following levels. Throughout this part, NMHC+NOx standards are applicable only to natural gas fueled engines at the option of the manufacturer, in lieu of HC+NOx standards.

TABLE 1 Phase 1 Exhaust Emission Standards
(grams per kilowatt-hour)

Engine Displacement Class	Hydrocarbons + Oxides of Nitrogen (HC+NOx)	Hydrocarbons	Carbon Monoxide	Oxides of Nitrogen (NOx)
I	16.1	--	519	--
II	13.4	--	519	--
III	--	295	805	5.36
IV	--	241	805	5.36
V	--	161	603	5.36

TABLE 2 Phase 2 Nonhandheld Exhaust Emission Standards by Model Year
(grams per kilowatt-hour)

		MODEL YEAR				
ENGINE CLASS	EMISSION REQUIREMENT	2001	2002	2003	2004	2005 and later
I	HC+ NOx	25.0	---->	---->	----->	----->
	NMHC+NOx	23.0	---->	---->	----->	----->
	CO	610	---->	---->	----->	----->
II	HC +NOx	18.0	16.6	15.0	13.6	12.1
	NMHC + NOx	16.7	15.3	14.0	12.7	11.3
	CO	610	---->	---->	----->	----->
	ASSUMED OEP PERCENTAGE	50%	62.5%	75%	87.5%	100%

TABLE 3 Phase 2 Handheld Exhaust Emission Standards Showing Phase-In by Aggregate Percentage of Sales
(grams per kilowatt-hour)

ENGINE CLASS	**EMISSION STANDARD**		**MODEL YEAR**			
	HC +NOx	**CO**	**2002**	**2003**	**2004**	**2005 and later**
III	210	805	20%	40%	70%	100%
IV	172	805				
V	116	603				

* * * * *

(3) Notwithstanding paragraph (a)(2) of this section, two stroke engines used to power lawnmowers or other nonhandheld equipment may meet Phase 1 Class III, IV or V standards and requirements, as appropriate, through model year 2002 subject to the provisions of section 90.107(e), (f) and (h). Such engines shall not be included in any

computations of Phase 2 nonhandheld credits or sales nor in any computations used to ascertain compliance with Phase 2 phase-in requirements for handheld engines.
* * * * *

(5) Notwithstanding paragraph (a)(2) of this section, engines used exclusively to power products which are used exclusively in wintertime, such as snowthrowers and ice augers, at the option of the engine manufacturer, need not certify to or comply with standards regulating emissions of HC, NOx, HC+NOx or NMHC+NOx , as applicable. If the manufacturer exercises the option to certify to standards regulating such emissions, such engines must meet such standards. If the engine is to be used in any equipment or vehicle other than an exclusively wintertime product such as a snowthrower or ice auger, it must be certified to the applicable standard regulating emissions of HC, NOx, HC+NOx or NMHC+NOx as applicable.

(6) During the phase-in of Phase 2 emission requirements for handheld engines, as applicable, those engine families not certified to Phase 2 requirements shall be certified to and shall meet Phase 1 requirements.

(7) Manufacturers of Phase 2 Class II engines must comply with the OEP percentages shown in Table 2 in each model year in cases where the manufacturer desires to engage in cross class averaging of emission credits as permitted under subpart C of this part, and in cases where the manufacturer desires to use credits banked by itself or another manufacturer in the 1999 or 2000 model year as permitted under subpart C of this part. Compliance with OEP percentages shall be determined by dividing the manufacturer's eligible sales of Class II engines that are overhead valve engines or are certified at or below the 2005 HC+NOx (NMHC + NOx) standard, by the manufacturer's total eligible sales of Class II engines for the subject model year. Side valve engine families with annual US sales of less than 1000 may be excluded from the calculation.

(8) Notwithstanding the standards shown in Table 2, the HC+NOx (NMHC+NOx) standard for Phase 2 Class II sidevalve engine families with annual production of 1000 or less shall be 24.0 g/kW-hr (22.0 g/kW-hr) for model years 2005 and later. Engines produced subject to this provision may not exceed this standard and are excluded from the averaging, banking and trading program and any related credit calculations after the 2004 model year. During the 2001 through 2004 model years these engines are subject to applicable Phase 2 standards, but shall not require the application of certification credits if their HC+NOx (NMHC+NOx) certification level is 24.0 g/kW-hr (22.0 g/kW-hr) or less.

(9) The standards shown in Table 2 notwithstanding, small volume engine manufacturers as defined in this part may, at their option, certify Phase 2 Class II engines to an HC+NOx (NMHC+NOx) standard of 24.0 g/kW-hr (22.0 g/kW-hr) through the 2004 model year. Such engines shall not exceed this standard and are excluded from the averaging, banking and trading program through the 2004 model year.

* * * * *

5. Section 90.104 is redesignated as §90.104-97 and the heading is revised and introductory language is added to read as follows:

§ 90.104-97 Compliance with emission standards for Phase 1 engines.

This section applies to Phase 1 engines only.
* * * * *

6. A new § 90.104-001 is added to read as follows:

§ 90.104-001 Compliance with emission standards for Phase 2 engines.

(a) The exhaust emission standards (FELs, where applicable) for Phase 2 engines set forth in this part apply to the emissions of the engines for their full useful lives as determined pursuant to §90.105.

(b) For all Phase 2 engines:

(1) If all test engines representing an engine family have emissions, when properly tested according to procedures in this part, less than or equal to each Phase 2 emission standard (FEL, where applicable) in a given engine displacement class and given model year, when multiplicatively adjusted by the deterioration factor determined in this section, that family complies with that class of emission standards for purposes of certification. If any test engine representing an engine family has emissions adjusted multiplicatively by the deterioration factor determined in this section, greater than any one emission standard (FEL, where applicable) for a given displacement class, that family does not comply with that class of emission standards.

(2) Except as otherwise permitted under this section, each manufacturer of handheld engines must comply with the Phase 2 phase-in schedule shown in § 90.103. Compliance with the Phase 2 phase-in schedule shall be determined each model year by dividing the manufacturer's total eligible sales of Phase 2 handheld engines of that model year by the manufacturer's total eligible sales of handheld engines subject to regulation under this part.

(3) In each model year during the Phase 2 phase-in period for handheld engines (i.e. model years 2002, 2003, and 2004), manufacturers of handheld engines shall project, updating as appropriate, and make available to the Administrator upon request, the sales figures necessary to complete the calculation required in paragraph (b)(2) of this section. Within 270 days after the end of each model year in the Phase 2 phase-in period, each manufacturer shall submit a report to the Administrator showing its calculation of compliance with the phase-in schedule.

(4) Small volume manufacturers of handheld engines as defined in this part are not subject to the phase-in requirements applicable to the 2002, 2003 or 2004 model years.

(c) Each manufacturer of nonhandheld engines must comply with all provisions of the averaging, banking and trading program outlined in subpart C of this part for each engine family participating in that program.

(d)(1)Deterioration factors for HC+NOx and NMHC+NOx emissions for all nonhandheld OHV Phase 2 engines without aftertreatment may be taken from Table 1 in this section or may be calculated according to the process described in paragraph (e) of this section. Except where the Administrator directs a nonhandheld engine manufacturer

to calculate a df under paragraph (d)(2) or (d)(3) of this section, if a manufacturer elects to calculate a df for an engine family, it must do so for all families of that class in the same useful life category. Where a manufacturer elects to take an HC+NOx or NMHC+NOx df from the table, it may use good engineering judgement to determine an appropriate CO df, provided it maintains and makes available to the Administrator upon request, such rationale and supporting data used to determine the CO df.

(2) If the Administrator has evidence for a given class and useful life category indicating that a sales weighted average of a manufacturer's actual dfs of those families for which an assigned df is being used, exceeds the assigned df by more than 15%, the Administrator may require the manufacturer to submit appropriate data to establish a df for some or all of the engine families. Such data may be generated through the process described in paragraph (e) of this section or through another process approved by the Administrator.

(3) If the Administrator has evidence indicating that the actual df of an engine family for which a manufacturer is using an assigned df, exceeds 1.8, the Administrator may require the manufacturer to submit appropriate data to establish a df for that engine family. Such data may be generated through the process described in paragraph (e) of this section or through another process approved by the Administrator.

TABLE 1: Assigned HC+NOX and NMHC+NOx Deterioration Factors for Nonhandheld Phase 2 Overhead Valve Engines Without Aftertreatment

CLASS I	USEFUL LIFE (HOURS)	66	250	500
	DETERIORATION FACTOR	1.3	1.3	1.3
CLASS II	USEFUL LIFE (HOURS)	250	500	1000
	DETERIORATION FACTOR	1.3	1.3	1.3

(e) Manufacturers shall obtain an assigned df or calculate a df, as appropriate, for each regulated pollutant for all Phase 2 handheld and nonhandheld engine families. Such dfs shall be used, as applicable, for certification, production line testing, and Selective Enforcement Auditing. For handheld engines, and nonhandheld engines not using assigned dfs from Table 1, manufacturers shall calculate dfs for each pollutant through one of the following options:

(1) For handheld engines, dfs shall be determined using good engineering judgement and reflect the exhaust emission deterioration expected over the useful life of the engine except that no df may be less than 1.0. EPA may reject a df if it has evidence that the df is not appropriate for that family. The manufacturer must retain actual emission test data to support its choice of df and furnish that data to the Administrator upon request. Acceptable data sources include, but are not limited to: (i) In-use data from an earlier model year of this family or a closely related family; (ii) Data from engines used in the field/bench adjustment program described in subpart M.

(2) For nonhandheld engines:

(i) On at least three test engines representing the configuration chosen to be the most likely to exceed HC+NOx (NMHC+NOx) emission standards, (FELs where applicable), and constructed to be representative of production engines pursuant to §90.117, conduct full Federal test procedure emission testing pursuant to the regulations of Subpart E of this part at the number of hours representing stabilized emissions pursuant to §90.118. Average the results and round to the same number of decimal places contained in the applicable standard, expressed to one additional significant figure. Conduct such emission testing again following field aging in actual usage to a number of hours equivalent to the applicable useful life hours, plus or minus five percent. Average the results and round to the same number of decimal places contained in the applicable standard, expressed to one additional significant figure. Divide the full useful life average emissions for each regulated pollutant by the stabilized average emission results and round to two significant figures. The resulting number shall be the df, unless it is less than 1.0, in which case the df shall be 1.0. Or;

(ii) On at least three test engines representing the configuration chosen to be the most likely to exceed HC+NOx (NMHC+NOx) emission standards (FELs where applicable), and constructed to be representative of production engines pursuant to §90.117, conduct full Federal test procedure emission testing pursuant to the regulation of Subpart E of this part at no fewer than three points as follows: at the number of hours representing stabilized emissions pursuant to §90.118; again following field aging in actual usage to a number of hours equivalent to the applicable useful life hours, plus or minus five percent; and also at no fewer than one point spaced approximately equally between the other two. The test results for each pollutant shall be rounded to the same number of decimal places contained in the applicable standard, expressed to one additional significant figure and plotted as a function of hours on the engine, rounded to the nearest whole hour. The best fit straight line, determined by the method of least squares, shall be drawn. Using this line, interpolate the emissions of each pollutant at 12 hours and at a number of hours equal to the applicable useful life. Divide the interpolated useful life emissions by the interpolated emissions at 12 hours and round this figure to two significant figures. The resultant number shall represent the df unless it is less than 1.0, in which case the df shall be 1.0. Or;

(iii) Perform another process, approved in advance by the Administrator, which will have the objective of adequately ascertaining the relationship of field aged emissions at full useful life with those tested with stabilized emissions at low hours. Or,

(iv) For manufacturers of Class II overhead valve engines certifying to 500 or 1000 hour useful lives, such manufacturers may establish dfs for such engines based on good engineering judgement that has been proposed in advance and determined to be satisfactory to the Administrator, for certification of model years 2001 through 2004. The Administrator may, in model year 2006 or later, direct the manufacturer to verify, in a period of time the Administrator determines to be reasonable, such dfs using methods described in paragraphs (e)(2)(i), (ii) or (iii) of this section. If the dfs established by the manufacturer under this provision underestimate the dfs determined by the methods under paragraphs (e)(2)(i), (ii) or (iii) of this section, by 15% or more, the Administrator shall provide the manufacturer with a period of two model years in which to obtain

sufficient certification emission credits from other nonhandheld engines to cover the credit shortfall calculated by substituting the df determined under this provision for the original df in the equation in §90.207(a).

(3) Calculated deterioration factors may cover families and model years in addition to the one upon which they were generated if the manufacturer submits a justification acceptable to the Administrator in advance of certification that the affected engine families can be reasonably expected to have similar emission deterioration characteristics.

(f) (1) Except as allowed in paragraph (f)(2) of this section, nonhandheld sidevalve engines or nonhandheld engines with exhaust aftertreatment shall be certified by field aging one engine in actual usage or by bench aging one engine on an aging cycle determined to represent field aged engines under § 90.1207 and §90.1208, to its full useful life followed by emission testing using applicable test procedures under this part. Emission test results for such bench aged engines shall be adjusted using adjustment factors calculated under §90.1208 to determine the certification levels. The dfs for such engines shall be calculated during this bench aging process using the techniques described in paragraphs (e)(2)(i),(ii) or (iii) of this section, except that bench aging of one engine may be used in place of field aging. In calculating the dfs of bench aged nonhandheld sidevalve engines or nonhandheld engines with aftertreatment, the emission test data at the number of hours equal to full useful life, shall first be multiplied by the adjustment factor applicable to that engine family and determined under §90.1208.

) Sidevalve Class II or aftertreatment-equipped Class II engines for which the manufacturer commits in writing, at the time of certification, to cease production by the end of the 2004 model year, are eligible for reduced certification testing, at the manufacturer's option. Bench aging or field aging for the certification of such engines may be stopped at 120 hours for engines having a useful life of 250 hours as determined pursuant to regulations in this part; at 250 hours for engines having a useful life of 500 hours; and at 500 hours for engines having a useful life of 1000 hours. In such cases, based on emission results from stabilized engines and engines aged as described in this paragraph, the manufacturer shall project emissions to 250, 500 or 1000 hours, as applicable, using good engineering judgement acceptable to the Administrator. The manufacturer shall then adjust bench aged emissions (if applicable) with the adjustment factor determined pursuant to §90.1208 for purposes of certification and computation of credits or credit needs. The manufacturer shall compute dfs for bench aged engines from the adjusted emission levels using good engineering judgement acceptable to the Administrator. For field aged engines, the manufacturer shall compute dfs from the projected 250, 500 or 1000 hour emissions, as applicable, using good engineering judgement acceptable to the Administrator.

7. Section 90.105 is revised to read as follows:

§ 90.105 Useful life periods for Phase 2 engines.

(a) Manufacturers shall declare the applicable useful life category for each engine family at the time of certification as described in this section. Unless otherwise approved by the Administrator, such category shall be that category which most closely approximates the actual useful lives of the equipment into which the engines are expected to be installed. Manufacturers shall retain data appropriate to support their choice of useful life category for each engine family. Such data shall be sufficient to show that the majority of engines or a sales weighted average of engines of that family are used in applications having a useful life best represented by the chosen category. Such data shall be furnished to the Administrator upon request.

(1) For handheld engines:

(i) Engines declared by the manufacturer at the time of certification as residential, as defined in §90.3, shall have a useful life for purposes of regulation under this part of 50 hours.

(ii) Engines declared by the manufacturer at the time of certification as commercial, as defined in §90.3, shall have a useful life for purposes of regulation under this part of 300 hours.

(2) For nonhandheld engines: Manufacturers shall select a useful life category from Table 1 of this section at the time of certification.

Table 1: Useful Life Categories for Nonhandheld Engines (hours)

	Category C	Category B	Category A
Class I	66	250	500
Class II	250	500	1000

(3) Data to support a manufacturer's choice of useful life category, for a given engine family, may include but are not limited to:

(i) Surveys of the life spans of the equipment in which the subject engines are installed;

(ii) Engineering evaluations of field aged engines to ascertain when engine performance deteriorates to the point where usefulness and/or reliability is impacted to a degree sufficient to necessitate overhaul or replacement;

(iii) Warranty statements and warranty periods;

(iv) Marketing materials regarding engine life;

(v) Failure reports from engine customers; and

(vi) Engineering evaluations of the durability, in hours, of specific engine technologies, engine materials or engine designs.

(b) [RESERVED]

8. Section 90.106 is amended by revising paragraph (a) and adding new paragraph (b)(3) to read as follows:

§ 90.106 Certificate of conformity.

(a)(1)Except as provided in §90.2(b), every manufacturer of new engines produced during or after model year 1997 must obtain a certificate of conformity covering such engines; however, engines manufactured during an annual production period beginning prior to September 1, 1996 are not required to be certified.

(2) Except as required in paragraph (b)(3) of this section, nonhandheld engines manufactured during an annual production period beginning prior to September 1, 2000 are not required to meet Phase 2 requirements.

(b)* * *

(3) Manufacturers who commence an annual production period for a nonhandheld engine family between January 1, 2000 and September 1, 2000 must meet Phase 2 requirements for that family only if that production period will exceed 12 months in length.

* * * * *

9. Section 90.107 is amended by adding new paragraphs (d)(11) and (d)(12) to read as follows:

§ 90.107 Application for certification.

* * * * *

(d)* * *

(11) This paragraph is applicable only to Phase 2 engines.

(i) Manufacturers of nonhandheld engines participating in the Averaging, Banking and Trading Program as described in Subpart C shall declare the applicable Family Emission Limit (FEL) for HC+NOx (NMHC+NOx).

(ii) Provide the applicable useful life as determined under §90.105.

(12) In cases where the regulations in §90.114(f) are applicable, a copy of the language to be included in the documents intended for the ultimate purchaser to describe the emission compliance period.

*** * * * ***

10. Section 90.108 is amended by adding paragraphs (c) and (d) to read as follows:

§ 90.108 Certification.

* * * * *

(c) For certificates issued for engine families included in the averaging, banking and trading program as described in subpart C of this part:

(1) All certificates issued are conditional upon the manufacturer complying with the provisions of subpart C of this part and the averaging, banking and trading related provisions of other applicable sections, both during and after the model year of

production.

(2) Failure to comply with all applicable averaging, banking and trading provisions in this part will be considered to be a failure to comply with the terms and conditions upon which the certificate was issued, and the certificate may be determined to be void *ab initio*.

(3) The manufacturer shall bear the burden of establishing to the satisfaction of the Administrator that the conditions upon which the certificate was granted were satisfied or waived.

(d) The Administrator may, upon request by a manufacturer, waive any requirement of this part otherwise necessary for the issuance of a certificate. The Administrator may set such conditions in a certificate as he or she deems appropriate to assure that the waived requirements are either satisfied or are demonstrated, for the subject engines, to be inappropriate, irrelevant or met by the application of a different requirement under this Title. The Administrator may indicate on such conditional certificates that failure to meet these conditions may result in suspension or revocation or the voiding *ab initio* of the certificate.

11. Section 90.113 is amended by revising the section heading and adding a sentence to the beginning of paragraph (a) to read as follows:

§ 90.113 In-use testing program for Phase 1 engines.

(a) This section applies only to Phase 1 engines. In-use testing requirements for Phase 2 engines are found in subpart M of this part.* * *

* * * * *

12. Section 90.114 is amended by adding new paragraphs (c)(11), (c)(12) and (f) to read as follows:

§ 90.114 Requirement of certification--engine information label.

* * * * *

(c)* * *

(11) For nonhandheld Phase 2 engines, the useful life category as determined by the manufacturer pursuant to §90.105. Such useful life category shall be shown by one of the following statements to be appended to the statement required under paragraph (c)(7) of this section:

(i) "EMISSIONS COMPLIANCE PERIOD: [useful life] HOURS"; or

(ii) "EMISSIONS COMPLIANCE PERIOD: CATEGORY [fill in C, B or A as indicated and appropriate from the chart in §90.105], REFER TO OWNER'S MANUAL FOR FURTHER INFORMATION"

(12) For handheld Phase 2 engines, the useful life category as determined by the manufacturer pursuant to §90.105. Such useful life category shall be shown by the following statement to be appended to the statement required under (c)(7) of this section: "EMISSIONS COMPLIANCE PERIOD: [50 or 300, as applicable] HOURS.

* * * * *

(f)(1) Manufacturers electing to use the labeling language of paragraph (c)(11)(ii) of this section must provide in the documents intended to be conveyed to the ultimate purchaser, the statement

"The Emissions Compliance Period referred to on the label entitled "Important Engine Information" indicates the number of operating hours for which the engine has been shown to meet Federal emission requirements. For engines less than 225 cc displacement, Category C= 66 hours, B= 250 hours and A = 500 hours. For engines of 225 cc or more, Category C = 250 hours, B = 500 hours and A = 1000 hours."

(2)The manufacturer must provide, in the same document as the statement in paragraph (f)(1), a statement of the engine's displacement or an explanation of how to readily determine the engine's displacement. The Administrator may approve alternate language to the statement in paragraph (f)(1), provided that the alternate language provides the ultimate purchaser with a clear description of the number of hours represented by each of the three letter categories for the subject engine's displacement.

13. Section 90.116 is amended by revising paragraph (d)(6) and (d)(7) and adding paragraphs (d)(8) through (d)(10) to read as follows:

§ 90.116 Certification procedure--determining engine displacement, engine class, and engine families.

* * * * *

(d) * * *

(6) The location of valves, where applicable, with respect to the cylinder (e.g. side valves or overhead valves);

(7) The number of catalytic converters, location, volume and composition;

(8) The thermal reactor characteristics;

(9) The fuel required (e.g. gasoline, natural gas, LPG); and

(10) The useful life category.

* * * * *

14. Section 90.117 is amended by revising paragraph (a) to read as follows:

§ 90.117 Certification procedure--test engine selection.

(a) For Phase 1 engines, the manufacturer must select, from each engine family, a test engine that the manufacturer determines to be most likely to exceed the emission standard. For Phase 2 engines, the manufacturer must select, from each engine family, a test engine of a configuration that the manufacturer determines to be most likely to exceed the HC+NOx [NMHC+NOx] Family Emission Limit (FEL), or HC+NOx [NMHC+NOx] standard if no FEL is applicable.

* * * * *

15. Section 90.118 is amended by revising the section heading and adding a new paragraph (e) to read as follows:

§ 90.118 Certification procedure--service accumulation and usage of deterioration factors.

* * * * *

(e) For purposes of establishing whether Phase 2 engines comply with applicable exhaust emission standards or FELs, the test results for each regulated pollutant as measured pursuant to §90.119 shall be multiplied by the applicable df determined under §90.104 -001 (d), (e) or (f). The product of the two numbers shall be rounded to the same number of decimal places contained in the applicable standard, and compared against the applicable standard or FEL, as appropriate.

16. Section 90.122 is amended by revising the first sentence of paragraph (a) and adding paragraph (d)(4) as follows:

§ 90.122 Amending the application and certificate of conformity.

(a) The engine manufacturer must notify the Administrator when either an engine is to be added to a certificate of conformity, an FEL is to be changed, or changes are to be made to a product line covered by a certificate of conformity. * * *

* * * * *

(d)* * *

(4) If the Administrator determines that a revised FEL meets the requirements of this subpart and the Act, the appropriate certificate of conformity will be amended, or a new certificate will be issued to reflect the revised FEL. The certificate of conformity is revised conditional upon compliance with § 90.207(b).

* * * * *

17. Subpart C, which was formerly reserved, is added as follows:

Subpart C - Certification Averaging, Banking, and Trading Provisions for Nonhandheld engines.

Section

Subpart C - Certification Averaging, Banking, and Trading Provisions for

Nonhandheld engines.

§ 90.201 Applicability.

The requirements of subpart C are applicable to all Phase 2 nonhandheld spark-ignition engines subject to the provisions of subpart A of part 90 except as provided in § 90.103(a). These provisions are not applicable to any Phase 1 engines or to any Phase 2 handheld engines. Participation in the averaging, banking and trading program is voluntary, but if a manufacturer elects to participate, it must do so in compliance with the regulations set forth in this subpart. The provisions of this subpart are applicable for HC+NOx (NMHC+NOx) emissions but not for CO emissions.

§ 90.202 Definitions.

The definitions in subpart A of this part apply to this subpart. The following definitions also apply to this subpart:

Averaging means the exchange of emission credits between engine families within a given manufacturer's product line.

Banking means the retention of emission credits by the manufacturer generating the emission credits or obtaining such credits through trading, for use in future model year averaging or trading as permitted by these regulations.

Emission credits represent the amount of emission reduction or exceedance, by an engine family, below or above the applicable HC+NOx (NMHC+NOx) emission standard, respectively. FELs below the standard create "positive credits," while FELs above the standard create "negative credits." In addition, "projected credits" refer to emission credits based on the projected applicable production/sales volume of the engine family. "Reserved credits" are emission credits generated within a model year waiting to be reported to EPA at the end of the model year. "Actual credits" refer to emission credits based on actual applicable sales volume as contained in the end-of-year reports submitted to EPA. Some or all of these credits may be revoked if EPA review of the end-of-year reports or any subsequent audit action(s) reveals problems or errors of any nature with credit computations.

Point of first retail sale means the point at which the engine is first sold directly to an end user. Generally, this point is the retail engine or equipment dealer. If the engine is sold first to an equipment manufacturer for installation in a piece of equipment, the equipment manufacturer may be the point of first retail sale if the equipment manufacturer can determine with reasonable certainty whether the engine is or is not exported or destined for retail sale in a state that has adopted applicable emission standards pursuant to a waiver granted by EPA under section 209(e) of the Act once it has been installed in a piece of equipment.

Trading means the exchange of emission credits between manufacturers.

§ 90.203 General provisions.

(a) The certification averaging, banking, and trading provisions for HC+NOx and NMHC+NOx emissions from eligible engines are described in this subpart.

(b) A nonhandheld engine family may use the averaging, banking and trading provisions for HC+NOx and NMHC+NOx emissions if it is subject to regulation under this part with certain exceptions specified in paragraph (c) of this section. HC+NOx and NMHC+NOx credits shall be interchangeable subject to the limitations on credit generation, credit usage, cross class averaging and other provisions described in this subpart.

(c) A manufacturer shall not include in its calculation of credit generation and may exclude from its calculation of credit usage, any new engines:

(1) which are exported, unless the manufacturer has reason or should have reason to believe that such engines have been or will be imported in a piece of equipment; or

(2) which are subject to state engine emission standards pursuant to a waiver granted by EPA under section 209(e) of the Act, unless the manufacturer demonstrates to the satisfaction of the Administrator that inclusion of these engines in averaging, banking and trading is appropriate.

(d) For an engine family using credits, a manufacturer may, at its option, include its entire production of that engine family in its calculation of credit usage for a given model year.

(e) A manufacturer may certify engine families at Family Emission Limits (FELs) above or below the applicable emission standard subject to the limitation in paragraph (f) of this section, provided the summation of the manufacturer's projected balance of credits from all credit transactions for each engine class in a given model year is greater than or equal to zero, as determined under § 90.207.

(1) A manufacturer of an engine family with an FEL exceeding the applicable emission standard must obtain positive emission credits sufficient to address the associated credit shortfall via averaging, banking, or trading.

(2) An engine family with an FEL below the applicable emission standard may generate positive emission credits for averaging, banking, or trading, or a combination thereof.

(3) In the case of an SEA failure, credits may be used to cover subsequent production of engines for the family in question if the manufacturer elects to recertify to a higher FEL. Credits may not be used to remedy a nonconformity determined by a Selective Enforcement Audit (SEA) or by in-use testing, except that the Administrator may permit the use of credits to address a nonconformity determined by an SEA where the use of such credits is one component of a multi-part remedy for the previously produced engines and the remedy, including the use of credits and the quantity of credits being used, is such that the Administrator is satisfied that the manufacturer has strong and lasting incentive to accurately verify its new engine emission levels and will set or reset its FELs for current and future model years so that production line compliance is assured.

(4) In the case of a production line testing failure pursuant to subpart H of this part, a manufacturer may revise the FEL based upon production line testing results obtained under subpart H and upon Administrator approval pursuant to § 90.122(d). The manufacturer may use certification credits to cover both past production and subsequent production of nonhandheld engines as needed.

(f) No engine family may have an FEL that is greater than 32.2 g/kW-hr for Class

I engines or 26.8 g/kW-hr for Class II engines.

(g)(1) All credits generated under this subpart will be designated as Class I or Class II credits, as appropriate. Except as described in section 90.204(b), credits generated in a given model year by an engine family subject to the Phase 2 emission requirements may only be used in averaging, banking or trading, as appropriate, for any nonhandheld engine family of the same class for which the Phase 2 requirements are applicable. Credits generated in one model year may not be used for prior model years, except as allowed under §90.207(c) or §90.104-001(e)(2)(iv).

(2) For the 2005 model year and for each subsequent model year, manufacturers of Class II engines must provide a demonstration that the sales weighted average FEL for HC+NOx (including NMHC+NOx FELs), for all of the manufacturer's Class II engines, will not exceed 13.6 g/kW-hr for the 2005 model year, 13.1 g/kW-hr for the 2006 model year and 12.6 g/kW-hr for the 2007 and each subsequent Phase 2 model year. Such demonstration shall be subject to the review and approval of the Administrator, shall be provided at the time of the first Class II certification of that model year and shall be based on projected eligible sales for that model year.

(h) Manufacturers must demonstrate compliance under the averaging, banking, and trading provisions for a particular model year by 270 days after the end of the model year. An engine family generating negative credits for which the manufacturer does not obtain or generate an adequate number of positive credits by that date from the same or previous model year engines will violate the conditions of the certificate of conformity. The certificate of conformity may be voided *ab initio* pursuant to §90.123 for this engine family.

§ 90.204 Averaging.

(a) Negative credits from engine families with FELs above the applicable emission standard must be offset by positive credits from engine families having FELs below the applicable emission standard, as allowed under the provisions of this subpart. Averaging of credits in this manner is used to determine compliance under §90.207(b).

(b) Cross-class averaging, i.e. the use of credits from Class I engines to cover Class II engines and vice versa, is permitted only for the two situations described in paragraphs (b)(1) and (b)(2) of this section and only when the affected Class II manufacturer meets the following minimum sales percentages for Class II overhead valve emission performance engines in that model year: 2001 (50%); 2002 (62.5%); 2003 (75%); 2004 (87.5%) and 2005 and later (100%). A manufacturer's sales percentage of overhead valve emission performance engines is determined by dividing the manufacturer's eligible sales (as defined in this part) of Class II overhead valve emission performance engines certified under this part by the manufacturer's total eligible sales of Class II engines certified under this part, and multiplying the resultant quotient by 100.

(1) Cross class averaging is allowed for credit exchanges from credit generating Class II engines to credit using Class I engines.

(2) Cross class averaging is allowed for credit exchanges from Class I engines to Class II engines where credits are necessary to address production line testing failures as permitted in §90.207 or to address credit shortfalls that arise due to testing pursuant to

§90.104-001(e)(2)(iv) .

(c) Subject to the limitations in §90.204(b), credits used in averaging for a given model year may be obtained from credits generated in the same model year by another engine family, credits banked in previous model years, or credits of the same or previous model year obtained through trading. The restrictions of this paragraph notwithstanding, credits from a given model year may be used to address credit needs of previous model year engines as allowed under §90.207(c).

(d) The use of Class II credits from the 1999 and 2000 model years (early banking) is subject to regulations under this subpart and also to the provisions of §90.103(a)(7).

§ 90.205 Banking.

(a) Beginning with the 2001 model year, a manufacturer of an engine family with an FEL below the applicable emission standard for a given model year may bank credits in that model year for use in averaging and trading. Negative credits may be banked only according to the requirements under § 90.207(c). Credits may also be banked in model years 1999 and 2000 subject to the requirements of paragraph (b) of this section.

(b) A manufacturer may bank credits for a given class of engines in the 1999 and 2000 model years for use in the 2001 and later model years, provided:

(1) For Class I credits: the manufacturer certifies its entire Class I production to the applicable 2001 model year requirements. HC+NOx (NMHC+NOx) credits may only be banked from engine families certified below 16.0 g/kW-hr (15.0 g/kW-hr) where those credits are not needed to bring the manufacturer's total Class I sales into compliance with the 2001 model year standard.

(2) For Class II credits: the manufacturer certifies its entire Class II product line to the applicable 2001 model year requirements. HC+NOx (NMHC+NOx) credits may only be banked from engine families certified below 12.1 (11.3 g/kw-hr) for engines where those credits are not needed to bring the manufacturer's total Class II sales into compliance with the 2001 model year standard.

(3) Engines certified under the provisions of this paragraph are subject to all of the requirements of this part applicable to Phase 2 engines.

(c) A manufacturer may bank actual credits only after the end of the model year and after EPA has reviewed the manufacturer's end-of-year reports. During the model year and before submittal of the end-of-year report, credits originally designated in the certification process for banking will be considered reserved and may be redesignated for trading or averaging in the end-of-year report and final report.

(d) Credits declared for banking from the previous model year that have not been reviewed by EPA may be used in averaging or trading transactions. However, such credits may be revoked at a later time following EPA review of the end-of-year report or any subsequent audit actions.

§ 90.206 Trading.

(a) An engine manufacturer may exchange emission credits with other nonhandheld engine manufacturers in trading.

(b) Credits for trading can be obtained from credits banked in previous model

years or credits generated during the model year of the trading transaction.

(c) Traded credits can be used for averaging, banking, or further trading transactions.

(d) Traded credits are subject to the limitations on cross-class averaging, use for past model years, and the use of credits from early banking as set forth in § 90.204(b), (c) and (d).

(e) In the event of a negative credit balance resulting from a transaction, both the buyer and the seller are liable, except in cases involving fraud. Certificates of all engine families participating in a negative trade may be voided *ab initio* pursuant to § 90.123.

§ 90.207 Credit calculation and manufacturer compliance with emission standards.

(a) For each engine family, HC+NOx [NMHC+NOx] certification emission credits (positive or negative) are to be calculated according to the following equation and rounded to the nearest gram. Consistent units are to be used throughout the equation.

Credits = Sales x (Standard - FEL) x Power x Useful life x Load Factor

Where:

Sales = eligible sales as defined in this part. Annual sales projections are used to project credit availability for initial certification. Eligible sales volume is used in determining actual credits for end-of-year compliance determination.

Standard = the current and applicable Small SI engine HC+NOx (NMHC+NOx) emission standard in grams per kilowatt hour as determined in §90.103.

FEL = the family emission limit for the engine family in grams per kilowatt hour.

Power = the sales weighted maximum modal power, in kilowatts, as calculated from the applicable federal test procedure as described in this part. This is determined by multiplying the maximum modal power of each configuration within the family by its eligible sales, summing across all configurations and dividing by the eligible sales of the entire family.

Useful Life = the useful life in hours corresponding to the useful life category for which the engine family was certified.

Load Factor = For Test Cycle A and Test Cycle B, the Load Factor = 47% (i.e. 0.47). For approved alternate test procedures, the load factor must be calculated according to the following formula:

$$\sum_{i=1}^{n} (\%\text{MTT mode}_i) \times (\%\text{MTS mode}_i) \times (\text{WF mode}_i)$$

Where:

%MTT mode$_i$ = percent of the maximum FTP torque for mode i

%MTS mode$_i$ = percent of the maximum FTP engine rotational speed for mode i

WF mode$_i$ = the weighting factor for mode i

(b) Manufacturer compliance with the emission standard is determined on a corporate average basis at the end of each model year. A manufacturer is in compliance when the sum of positive and negative emission credits it holds for each class is greater than or equal to zero, except that the sum of positive and negative credits for a given class may be less than zero as allowed under paragraph (c) of this section.

(c) (1) A manufacturer may use credits from a later model year to address dfs of model year 2001 through 2004 Class II engines certified to 500 or 1000 hours, when the dfs are shown to be underestimated pursuant to the provisions of §90.104-001(e)(2)(iv).

(2) If, as a result of production line testing as required in subpart H of this part, a nonhandheld engine family is determined to be in noncompliance pursuant to §90.710, the manufacturer may raise its FEL for past and future production as necessary. Further, a manufacturer may carry a negative credit balance (known also as a credit deficit) for the subject class and model year and for the next three model years. The credit deficit may be no larger than that created by the nonconforming family. If the credit deficit still exists after the model year following the model year in which the nonconformity occurred, the manufacturer must obtain and apply credits to offset the remaining credit deficit at a rate of 1.2 grams for each gram of deficit within the next two model years. The provisions of this paragraph are subject to the limitations in paragraph (d) of this section.

(d) Regulations elsewhere in this part notwithstanding, if a nonhandheld engine manufacturer experiences two or more production line testing failures pursuant to the regulations in subpart H of this part in a given model year, the manufacturer may raise the FEL of previously produced engines only to the extent that such engines represent no more than 10% of the manufacturer's total eligible sales for that model year. For any additional engines determined to be in noncompliance, the manufacturer must conduct offsetting projects approved in advance by the Administrator.

(e) If, as a result of production line testing under subpart H, a manufacturer desires to lower its FEL it may do so subject to §90.708(c).

(f) Except as allowed at paragraph (c) of this section, when a manufacturer is not in compliance with the applicable emission standard by the date 270 days after the end of the model year, considering all credit calculations and transactions completed by then, the manufacturer will be in violation of these regulations and EPA may, pursuant to § 90.123, void *ab initio* the certificates of engine families for which the manufacturer has not obtained sufficient positive emission credits.

§ 90.208 Certification.

(a) In the application for certification a manufacturer must:

(1) Submit a statement that the engines for which certification is requested will not, to the best of the manufacturer's belief, cause the manufacturer to be in noncompliance under § 90.207(b) when all credits are calculated for all the manufacturer's engine families.

(2) Declare an FEL for each engine family for HC+NOx (NMHC+NOx). The FEL must have the same number of significant digits as the emission standard.

(3) Indicate the projected number of credits generated/needed for this family; the

projected applicable eligible sales volume, by quarter; and the values required to calculate credits as given in § 90.207.

(4) Submit calculations in accordance with § 90.207 of projected emission credits (positive or negative) based on quarterly production projections for each family.

(5) (i) If the engine family is projected to have negative emission credits, state specifically the source (manufacturer/engine family or reserved) of the credits necessary to offset the credit deficit according to quarterly projected production.

(ii) If the engine family is projected to generate credits, state specifically (manufacturer/engine family or reserved) where the quarterly projected credits will be applied.

(b) All certificates issued are conditional upon manufacturer compliance with the provisions of this subpart both during and after the model year of production.

(c) Failure to comply with all provisions of this subpart will be considered to be a failure to satisfy the conditions upon which the certificate was issued, and the certificate may be determined to be void *ab initio* pursuant to § 90.123.

(d) The manufacturer bears the burden of establishing to the satisfaction of the Administrator that the conditions upon which the certificate was issued were satisfied or waived.

(e) Projected credits based on information supplied in the certification application may be used to obtain a certificate of conformity. However, any such credits may be revoked based on review of end-of-year reports, follow-up audits, and any other verification steps considered appropriate by the Administrator.

§ 90.209 Maintenance of records.

(a) The manufacturer must establish, maintain, and retain the following adequately organized and indexed records for each engine family:

(1) EPA engine family identification code,

(2) Family Emission Limit (FEL) or FELs where FEL changes have been implemented during the model year,

(3) Maximum modal power for each configuration sold,

(4) Projected sales volume for the model year, and

(5) Records appropriate to establish the quantities of engines that constitute eligible sales as defined in section 90.202 for each power rating for each FEL.

(b) Any manufacturer producing an engine family participating in trading reserved credits must maintain the following records on a quarterly basis for each such engine family:

(1) The engine family,

(2) The actual quarterly and cumulative applicable production/sales volume,

(3) The values required to calculate credits as given in § 90.207,

(4) The resulting type and number of credits generated/required,

(5) How and where credit surpluses are dispersed, and

(6) How and through what means credit deficits are met.

(c) The manufacturer must retain all records required to be maintained under this

section for a period of eight years from the due date for the end-of-model year report. Records may be retained as hard copy or reduced to microfilm, ADP diskettes, and so forth, depending on the manufacturer's record retention procedure; provided, that in every case all information contained in the hard copy is retained.

(d) Nothing in this section limits the Administrator's discretion in requiring the manufacturer to retain additional records or submit information not specifically required by this section.

(e) Pursuant to a request made by the Administrator, the manufacturer must submit to the Administrator the information that the manufacturer is required to retain.

(f) EPA may, pursuant to § 90.123, void *ab initio* a certificate of conformity for an engine family for which the manufacturer fails to retain the records required in this section or to provide such information to the Administrator upon request.

§ 90.210 End-of-year and final reports.

(a) End-of-year and final reports must indicate the engine family, the class (I or II), the actual sales volume, the values required to calculate credits as given in § 90.207, and the number of credits generated/required. Manufacturers must also submit how and where credit surpluses were dispersed (or are to be banked) and/or how and through what means credit deficits were met. Copies of contracts related to credit trading must be included or supplied by the broker, if applicable. The report must include a calculation of credit balances to show that the credit summation for each class of engines is equal to or greater than zero (or less than zero in cases of negative credit balances as permitted in §90.207(c)). For engines subject to the provisions of §90.203(g)(2), the report must include a calculation of the sales weighted average HC+NOx (including NMHC+NOx) FEL.

(b) The calculation of eligible sales for end-of-year and final reports must be based on the location of the point of first retail sale (for example, retail customer or dealer) also called the final product purchase location. Upon advance written request, the Administrator will consider other methods to track engines for credit calculation purposes that provide high levels of confidence that eligible sales are accurately counted.

(c)(1)End-of-year reports must be submitted within 90 days of the end of the model year to: Manager, Engine Compliance Programs Group (6403-J), U.S. Environmental Protection Agency, Washington, DC 20460.

(2) Unless otherwise approved by the Administrator, final reports must be submitted within 270 days of the end of the model year to: Manager, Engine Compliance Programs Group (6403-J), U.S. Environmental Protection Agency, Washington, DC 20460.

(d) Failure by a manufacturer to submit any end-of-year or final reports in the specified time for any engines subject to regulation under this part is a violation of §90.1003(a)(2) and section 213(d) of the Clean Air Act for each engine.

(e) A manufacturer generating credits for banking only who fails to submit end-of-year reports in the applicable specified time period (90 days after the end of the model year) may not use the credits until such reports are received and reviewed by EPA. Use

of projected credits pending EPA review is not permitted in these circumstances.

(f) Errors discovered by EPA or the manufacturer in the end-of-year report, including errors in credit calculation, may be corrected in the final report.

(g) If EPA or the manufacturer determines that a reporting error occurred on an end-of-year or final report previously submitted to EPA under this section, the manufacturer's credits and credit calculations must be recalculated. Erroneous positive credits will be void except as provided in paragraph (h) of this section. Erroneous negative credit balances may be adjusted by EPA.

(h) If within 270 days of the end of the model year, EPA review determines a reporting error in the manufacturer's favor (that is, resulting in an increased credit balance) or if the manufacturer discovers such an error within 270 days of the end of the model year, EPA shall restore the credits for use by the manufacturer.

§ 90.211 Request for hearing.

An engine manufacturer may request a hearing on the Administrator's voiding of the certificate under §§ 90.203(h), 90.206(e), 90.207(f), 90.208(c), or 90.209(f), pursuant to §90.124. The procedures of §90.125 shall apply to any such hearing.

Subpart D--Emission Test Equipment Provisions

18. Section 90.301 is amended by revising paragraph (a) and adding paragraph (d) to read as follows:

§ 90.301 Applicability.

(a) This subpart describes the equipment required in order to perform exhaust emission tests on new nonroad spark-ignition engines and vehicles subject to the provisions of subpart A of part 90. Certain text in this subpart is identified as pertaining to Phase 1 or Phase 2 engines. Such text pertains only to engines of the specified Phase. If no indication of Phase is given, the text pertains to all engines, regardless of Phase.

* * * * *

(d) For Phase 2 Class I and Phase 2 Class II natural gas fueled engines, the following sections are incorporated by reference from 40 CFR Part 86. The requirements of these sections which pertain specifically to the measurement and calculation of non-methane hydrocarbon (NMHC) exhaust emissions from otto cycle heavy-duty engines must be followed when determining the NMHC exhaust emissions from Phase 2 Class I and Phase 2 Class II natural gas fueled engines. Those sections are; §86.1306-90 Equipment required and specifications; overview, §86.1309-90 Exhaust gas sampling system; otto-cycle engines, §86-1311-94 Exhaust gas analytical system; CVS bag sampling, §86.1313-94(e) Fuel Specification - Natural gas-fuel, §86.1314-94 Analytical gases, §86.1316-94 Calibrations; frequency and overview, 86.1321-94 Hydrocarbon analyzer calibration, §86.1325-94 Methane analyzer calibration, §86.1327-94 Engine dynamometer test procedures, overview, § 86.1340-94 Exhaust sample analysis, §86.1342-94 Calculations; exhaust emissions, §86.1344-94(d) Required information -

Pre-test data, §86.1344-94(e) Required information - Test data.

19. Section 90.302 is revised to read as follows:

§ 90.302 Definitions.

The definitions in § 90.3 apply to this subpart. The following definitions also apply to this subpart.

Rated speed means the speed at which the manufacturer specifies the maximum rated power of an engine.

Intermediate speed means the engine speed which is 85 percent of the rated speed.

Natural gas means a fuel whose primary constituent is methane.

Subpart E--Gaseous Exhaust Test Procedures

20. Section §90.401 is amended by adding paragraphs (c) and (d) to read as follows;

§ 90.401 Applicability.

* * * * *

(c) Certain text in this subpart is identified as pertaining to Phase 1 or Phase 2 engines. Such text pertains only to engines of the specified Phase. If no indication of Phase is given, the text pertains to all engines, regardless of Phase.

(d) For Phase 2 Class I and Phase 2 Class II natural gas fueled engines, the following sections are incorporated by reference from 40 CFR Part 86. The requirements of these sections which pertain specifically to the measurement and calculation of non-methane hydrocarbon (NMHC) exhaust emissions from otto cycle heavy-duty engines must be followed when determining the NMHC exhaust emissions from Phase 2 Class I and Phase 2 Class II natural gas fueled engines. Those sections are; 40 CFR 86.1327-94 Engine dynamometer test procedures, overview, 40 CFR 86.1340-94 Exhaust sample analysis, 40 CFR 86.1342-94 Calculations; exhaust emissions, 40 CFR 86.1344-94(d) Required information - Pre-test data, and 40 CFR 86.1344-94(e) Required information - Test data.

21. Section 90.404 is amended by adding a sentence after the first sentence in paragraph (b) to read as follows:

§ 90.404 Test procedure overview.

* * * * *

(b) * * * For Phase 2 Class I and II natural gas fueled engines the test is also designed to

determine the brake-specific emissions of non-methane hydrocarbons. * * *
* * * * *

22. Section 90.409 is amended by revising paragraph (a)(3) to read as follows:

§ 90.409 Engine dynamometer test run.
(a) * * *
(3) For Phase 1 engines, at the manufacturer's option, the engine can be run with the throttle in a fixed position or by using the engine's governor (if the engine is manufactured with a governor). In either case, the engine speed and load must meet the requirements specified in paragraph (b)(12) of this section. For Phase 2 Class I and Class II engines equipped with an engine speed governor, the governor must be used to control engine speed during all test cycle modes except for Mode 1, and no external throttle control may be used. For Phase 2 Class I and Class II engines equipped with an engine speed governor, during Mode 1 fixed throttle operation may be used to determine the 100% torque value.
* * * * *

23. Section 90.410 is amended by revising paragraph (b) to read as follows:

§ 90.410 Engine test cycle.
* * * * *
(b) For Phase 1 engines and Phase 2 Class III, IV, V, and Phase 2 Class I and II engines not equipped with an engine speed governor, during each non-idle mode, hold both the specified speed and load within ± five percent of point. During the idle mode, hold speed within ± ten percent of the manufacturer's specified idle engine speed. For Phase 2 Class I and II engines equipped with an engine speed governor, during Mode 1 hold both the specified speed and load within ± five percent of point, during Modes 2-5, hold the specified load with ± five percent of point, and during the idle mode hold the specified speed within ± ten percent of the manufacturer's specified idle engine speed (see Table 1 in Appendix A to Subpart E for a description of test Modes).

* * * * *

24. In Appendix A to Subpart E of Part 90, Table 2 is revised to read as follows:

Appendix A to Subpart E of Part 90--Tables

* * * * *

Table 2. Test Cycles for Class I-V Engines

Mode	1	2	3	4	5	6	7	8	9
Speed	Rated Speed					Intermediate Speed			
Mode Points A Cycle						1	2	3	4
Load Percent - A Cycle						100	75	50	25
Weighting						9%	20%	29%	30%
Mode Points B Cycle	1	2	3	4	5				
Load Percent - B Cycle	100	75	50	25	10				
Weighting	9%	20%	29%	30%	7%				
Mode Points C Cycle	1								
Load Percent - C Cycle	100								
Weighting for Phase 1 Engines	90%								
Weighting for Phase 2 Engines	85%								

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25. Section 90.503 is amended by revising paragraphs (f)(3) and (f)(4) to read as follows:

§ 90.503 Test orders.

* * * * *

(f) * * *

(3) Any SEA test order for which the family or configuration, as appropriate, fails under § 90.510 or for which testing is not completed will not be counted against the annual limit.

(4) When the annual limit has been met, the Administrator may issue additional test orders to test those families or configurations for which evidence exists indicating nonconformity, or for which the Administrator has reason to believe are not being appropriately represented or tested in Production Line Testing conducted under subpart H of this part, if applicable. An SEA test order issued pursuant to this provision will include a statement as to the reason for its issuance.

26. Section 90.509 is amended by revising paragraph (b) to read as follows:

§ 90.509 Calculation and reporting of test results.

*** * * * ***

(b)(1) Final test results are calculated by summing the initial test results derived in paragraph (a) of this section for each test engine, dividing by the number of tests conducted on the engine, and rounding to the same number of decimal places contained in the applicable standard. For Phase 2 engines only, this result shall be expressed to one additional significant figure.

(2) Final deteriorated test results (for Phase 2 test engines only) are calculated by applying the appropriate deterioration factors, from the certification process for the engine family, to the final test results, and rounding to the same number of decimal places contained in the applicable standard.

*** * * * ***

27. Section 90.510 is amended by revising paragraph (b) to read as follows:

§ 90.510 Compliance with acceptable quality level and passing and failing criteria for selective enforcement audits.

*** * * * ***

(b) A failed engine is a Phase 1 engine whose final test results pursuant to §90.509(b), for one or more of the applicable pollutants exceed the emission standard. For Phase 2 engines, a failed engine is a Phase 2 engine whose final deteriorated test results pursuant to §90.509(b), for one or more of the applicable pollutants exceed the emission standard (FEL, if applicable).

* * * * *

28. Section 90.512 is amended by revising paragraph (b) to read as follows:

§ 90.512 Request for public hearing.

* * * * *

(b)The manufacturer's request shall be filed with the Administrator not later than 15 days after the Administrator's notification of his or her decision to suspend, revoke or void, unless otherwise specified by the Administrator. The manufacturer shall simultaneously serve two copies of this request upon the Director of the Engine Programs and Compliance Division and file two copies with the Hearing Clerk of the Agency. Failure of the manufacturer to request a hearing within the time provided constitutes a waiver of the right to a hearing. Subsequent to the expiration of the period for requesting a hearing as of right, the Administrator may, in his or her discretion and for good cause shown, grant the manufacturer a hearing to contest the suspension, revocation or voiding.

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Subpart G--Importation of Nonconforming Engines

29. Section 90.612 is amended by revising paragraph (g) to read as follows:

§ 90.612 Exemptions and exclusions.

* * * * *

(g) Applications for exemptions and exclusions provided for in paragraphs (b), (c), and (e) of this section are to be mailed to: U.S. Environmental Protection Agency, Office of Mobile Sources, Engine Compliance Programs Group (6403-J), Washington, D.C. 20460, Attention: Imports.

30. Subpart H, which was previously "reserved", is added to read as follows:

Subpart H - Manufacturer Production Line Testing Program

Section

90.712 Request for public hearing.
90.713 Administrative procedures for public hearing.

Subpart H - Manufacturer Production Line Testing Program

§ 90.701 Applicability.

(a) Except as described in paragraph (b) of this section, the requirements of subpart H are applicable to all Phase 2 nonroad engines subject to the provisions of subpart A of part 90.

(b) The requirements of subpart H are applicable to all handheld engine families described in paragraph (a) of this section unless otherwise exempted in this part. Manufacturers of nonhandheld engine families described in paragraph (a) of this section may choose between the Production Line Testing Program described in this subpart for all of their engine families and the Selective Enforcement Auditing Program described in Subpart F of this part for all of their engine families, subject to the restrictions of paragraph (d) of this section.

(c) Nonhandheld engine manufacturers shall notify EPA of their selection when they begin their first Phase 2 model year's certification.

(d) A manufacturer of nonhandheld Phase 2 engines may change from the Production Line Testing program described in this subpart to the Selective Enforcement Auditing program described in Subpart F and vice versa, provided that:

(1) it does so for all of its engine families at the same time,

(2) when changing from Production Line Testing to Selective Enforcement Auditing, it has remained under Production Line Testing for a minimum of three model years,

(3) it provides written notice to EPA one complete model year prior to the model year for which it is requesting to change from Production Line Testing to Selective Enforcement Auditing,

(4) it provides written notice to EPA thirty (30) days prior to the date for which it is requesting to change from Selective Enforcement Auditing to Production Line Testing, and;

(5) it is not carrying a negative credit balance at the time it changes from Production Line Testing to Selective Enforcement Auditing.

(e) The procedures described in this subpart are optional for small volume engine manufacturers and small volume engine families as defined in this part, and for engine families certified to a level at least 50% below the applicable HC+NOx (NMHC+NOx) standard (FEL if applicable). Engine families for which the manufacturer opts not to conduct testing under this subpart pursuant to this paragraph shall be subject to the Selective Enforcement Auditing procedures of Subpart F of this part.

§ 90.702 Definitions.

The definitions in subpart A of this part apply to this subpart. The following definitions also apply to this subpart.

Configuration means any subclassification of an engine family which can be

described on the basis of gross power, emission control system, governed speed, injector size, engine calibration, and other parameters as designated by the Administrator.

Test sample means the collection of engines selected from the population of an engine family for emission testing.

§ 90.703 Production Line Testing by the Manufacturer.

(a) Manufacturers of small SI engines shall test production line engines from each engine family according to the provisions of this subpart.

(b) Production line engines must be tested using the test procedure specified in subpart E of this part except that the Administrator may approve minor variations that the Administrator deems necessary to facilitate efficient and economical testing where the manufacturer demonstrates to the satisfaction of the Administrator that such variations will not significantly impact the test results. Any adjustable engine parameter must be set to values or positions that are within the range recommended to the ultimate purchaser, unless otherwise specified by the Administrator. The Administrator may specify values within or without the range recommended to the ultimate purchaser.

(c) The Administrator, on the basis of a written application from a manufacturer, may approve alternate methods to evaluate production line compliance, where such alternate methods are demonstrated by the manufacturer to:

(1) Produce substantially the same levels of producer and consumer risk as the Cum Sum procedure described in this subpart that mean emissions of an engine family are below the appropriate standards (FEL, where applicable);

(2) Provide for continuous rather than point-in-time sampling; and

(3) Include an appropriate decision mechanism for determining noncompliance upon which the Administrator can suspend or revoke the certificate of conformity.

§ 90.704 Maintenance of records; submittal of information.

(a) The manufacturer of any new small SI engine subject to any of the provisions of this subpart must establish, maintain, and retain the following adequately organized and indexed records:

(1) General records. A description of all equipment used to test engines in accordance with § 90.703. Subpart D of this part sets forth relevant equipment requirements in §§ 90.304, 90.305, 90.306, 90.307, 90.308, 90.309, 90.310 and 90.313.

(2) Individual records. These records pertain to each production line test conducted pursuant to this subpart and include:

(i) The date, time, and location of each test;

(ii) The number of hours of service accumulated on the test engine when the test began and ended;

(iii) The names of all supervisory personnel involved in the conduct of the production line test;

(iv) A record and description of any adjustment, repair, preparation or modification performed prior to and/or subsequent to approval by the Administrator pursuant to § 90.707(b)(1), giving the date, associated time, justification, name(s) of the

authorizing personnel, and names of all supervisory personnel responsible for the conduct of the repair;

(v) If applicable, the date the engine was shipped from the assembly plant, associated storage facility or port facility, and the date the engine was received at the testing facility;

(vi) A complete record of all emission tests performed pursuant to this subpart (except tests performed directly by EPA), including all individual worksheets and/or other documentation relating to each test, or exact copies thereof, in accordance with the record requirements specified in §§90.405 and 90.406.

(vii) A brief description of any significant events during testing not otherwise described under paragraph (a)(2) of this section, commencing with the test engine selection process and including such extraordinary events as engine damage during shipment.

(3) The manufacturer must establish, maintain and retain general records, pursuant to paragraph (a)(1) of this section, for each test cell that can be used to perform emission testing under this subpart.

(b) The manufacturer must retain all records required to be maintained under this subpart for a period of one year after completion of all testing required for the engine family in a model year. Records may be retained as hard copy (i.e., on paper) or reduced to microfilm, floppy disk, or some other method of data storage, depending upon the manufacturer's record retention procedure; provided, that in every case, all the information contained in the hard copy is retained.

(c) The manufacturer must, upon request by the Administrator, submit the following information with regard to engine production:

(1) projected production or actual production for each engine configuration within each engine family for which certification has been requested and/or approved,

(2) number of engines, by configuration and assembly plant, scheduled for production or actually produced.

(d) Nothing in this section limits the Administrator's discretion to require a manufacturer to establish, maintain, retain or submit to EPA information not specified by this section.

(e) All reports, submissions, notifications, and requests for approval made under this subpart must be addressed to: Manager, Engine Compliance Programs Group (6403J), U.S. Environmental Protection Agency, Washington, DC 20460.

(f) The manufacturer must electronically submit the results of its production line testing using EPA‘s standardized format. The Administrator may exempt manufacturers from this requirement upon written request with supporting justification.

§ 90.705 Right of entry and access.

(a) To allow the Administrator to determine whether a manufacturer is complying with the provisions of this or other subparts of this part, one or more EPA enforcement officers may enter during operating hours and upon presentation of credentials any of the following places:

(1) Any facility, including ports of entry, where any engine to be introduced into

commerce or any emission-related component is manufactured, assembled, or stored;

(2) Any facility where any test conducted pursuant to this or any other subpart or any procedure or activity connected with such test is or was performed;

(3) Any facility where any test engine is present; and

(4) Any facility where any record required under § 90.704 or other document relating to this subpart or any other subpart of this part is located.

(b) Upon admission to any facility referred to in paragraph (a) of this section, EPA enforcement officers are authorized to perform the following inspection-related activities:

(1) To inspect and monitor any aspect of engine manufacture, assembly, storage, testing and other procedures, and to inspect and monitor the facilities in which these procedures are conducted;

(2) To inspect and monitor any aspect of engine test procedures or activities, including test engine selection, preparation and service accumulation, emission test cycles, and maintenance and verification of test equipment calibration;

(3) To inspect and make copies of any records or documents related to the assembly, storage, selection, and testing of an engine; and

(4) To inspect and photograph any part or aspect of any engine and any component used in the assembly thereof that is reasonably related to the purpose of the entry.

(c) EPA enforcement officers are authorized to obtain reasonable assistance without cost from those in charge of a facility to help the officers perform any function listed in this subpart and they are authorized to request the manufacturer to make arrangements with those in charge of a facility operated for the manufacturer's benefit to furnish reasonable assistance without cost to EPA.

(1) Reasonable assistance includes, but is not limited to, clerical, copying, interpretation and translation services; the making available on an EPA enforcement officer's request of personnel of the facility being inspected during their working hours to inform the EPA enforcement officer of how the facility operates and to answer the officer's questions; and the performance on request of emission tests on any engine which is being, has been, or will be used for production line or other testing.

(2) By written request, signed by the Assistant Administrator for Air and Radiation, and served on the manufacturer, a manufacturer may be compelled to cause the personal appearance of any employee at such a facility before an EPA enforcement officer. Any such employee who has been instructed by the manufacturer to appear will be entitled to be accompanied, represented, and advised by counsel.

(d) EPA enforcement officers are authorized to seek a warrant or court order authorizing the EPA enforcement officers to conduct the activities authorized in this section, as appropriate, to execute the functions specified in this section. EPA enforcement officers may proceed ex parte to obtain a warrant or court order whether or not the EPA enforcement officers first attempted to seek permission from the manufacturer or the party in charge of the facility(ies) in question to conduct the activities authorized in this section.

(e) A manufacturer must permit an EPA enforcement officer(s) who presents a warrant or court order to conduct the activities authorized in this section as described in

the warrant or court order. The manufacturer must also cause those in charge of its facility or a facility operated for its benefit to permit entry and access as authorized in this section pursuant to a warrant or court order whether or not the manufacturer controls the facility. In the absence of a warrant or court order, an EPA enforcement officer(s) may conduct the activities authorized in this section only upon the consent of the manufacturer or the party in charge of the facility(ies) in question.

(f) It is not a violation of this part or the Clean Air Act for any person to refuse to permit an EPA enforcement officer(s) to conduct the activities authorized in this section if the officer(s) appears without a warrant or court order.

(g) A manufacturer is responsible for locating its foreign testing and manufacturing facilities in jurisdictions where local law does not prohibit an EPA enforcement officer(s) from conducting the entry and access activities specified in this section. EPA will not attempt to make any inspections which it has been informed local foreign law prohibits.

§ 90.706 Engine sample selection.

(a) At the start of each model year, the small SI engine manufacturer will begin to randomly select engines from each engine family for production line testing at a rate of one percent of the projected eligible sales of that family. Each engine will be selected from the end of the assembly line.

(1) For newly certified engine families: After two engines are tested, the manufacturer will calculate the required sample size for the model year for each pollutant (HC+NOx(NMHC+NOx) and CO) according to the Sample Size Equation in paragraph (b) of this section.

(2) For carry-over engine families: After one engine is tested, the manufacturer will combine the test with the last test result from the previous model year and then calculate the required sample size for the model year for each pollutant according to the Sample Size Equation in paragraph (b) of this section.

(b)(1) Manufacturers will calculate the required sample size for the model year for each pollutant for each engine family using the Sample Size Equation in this paragraph. N is calculated for each pollutant from each test result. The higher of the two values for the number N indicates the number of tests required for the model year for an engine family. N is recalculated for each pollutant after each test. Test results used to calculate the variables in the Sample Size Equation must be final deteriorated test results as specified in §90.709(c).

$$N = \left[\frac{(t_{95} * \sigma)}{(x - FEL)}\right]^2 + 1$$

where:

N = required sample size for the model year.

t_{95} = 95% confidence coefficient. It is dependent on the actual number of tests completed, n, as specified in the table in paragraph (b)(2) of this section. It defines one-tail, 95% confidence intervals.

σ = actual test sample standard deviation calculated from the following equation:

$$\sigma = \sqrt{\frac{\sum (X_i - x)^2}{n - 1}}$$

x_i = emission test result for an individual engine
x = mean of emission test results of the actual sample
FEL = Family Emission Limit or standard if no FEL
n = The actual number of tests completed in an engine family

(2) Actual Number of Tests (n) & 1-tail Confidence Coefficients (t_{95})

n	t_{95}	n	t_{95}	n	t_{95}
2	6.31	12	1.80	22	1.72
3	2.92	13	1.78	23	1.72
4	2.35	14	1.77	24	1.71
5	2.13	15	1.76	25	1.71
6	2.02	16	1.75	26	1.71
7	1.94	17	1.75	27	1.71
8	1.90	18	1.74	28	1.70
9	1.86	19	1.73	29	1.70
10	1.83	20	1.73	30	1.70
11	1.81	21	1.72	∞	1.645

(3) A manufacturer must distribute the testing of the remaining number of engines needed to meet the required sample size N, evenly throughout the remainder of the model year.

(4) After each new test, the required sample size, N, is recalculated using updated sample means, sample standard deviations and the appropriate 95% confidence coefficient.

(5) A manufacturer must continue testing and updating each engine family's sample size calculations according to paragraphs (b)(1) through (b)(4) of this section until a decision is made to stop testing as described in paragraph (b)(6) of this section or a noncompliance decision is made pursuant to §90.710(b).

(6) If, at any time throughout the model year, the calculated required sample size, N, for an engine family is less than or equal to the actual sample size, n, and the sample mean, x, for HC + NOx (NMHC+NOx) and CO is less than or equal to the FEL or standard if no FEL, the manufacturer may stop testing that engine family.

(7) If, at any time throughout the model year, the sample mean, x, for HC + NOx (NMHC+NOx) or CO is greater than the FEL or standard if no FEL, the manufacturer must continue testing that engine family at the appropriate maximum sampling rate.

(8) The maximum required sample size for an engine family (regardless of the required sample size, N, as calculated in paragraph (b)(1) of this section) is the lesser of thirty tests per model year or one percent of projected annual production for that engine

family for that model year.

(9) Manufacturers may elect to test additional engines. Additional engines, whether tested in accordance with the testing procedures specified in § 90.707 or not, may not be included in the Sample Size and Cumulative Sum equation calculations as defined in paragraph (b)(1) of this section and §90.708(a), respectively. However, such additional test results may be used as appropriate to "bracket" or define the boundaries of the production duration of any emission nonconformity determined under this subpart. Such additional test data must be identified and provided to EPA with the submittal of the official CumSum results.

(c) The manufacturer must produce and assemble the test engines using its normal production and assembly process for engines to be distributed into commerce.

(d) No quality control, testing, or assembly procedures shall be used on any test engine or any portion thereof, including parts and subassemblies, that have not been or will not be used during the production and assembly of all other engines of that family, unless the Administrator approves the modification in production or assembly procedures in advance.

§ 90.707 Test procedures.

(a)(1) For small SI engines subject to the provisions of this subpart, the prescribed test procedures are specified in subpart E of this part.

(2) The Administrator may, on the basis of a written application by a manufacturer, prescribe test procedures other than those specified in paragraph (a)(1) of this section for any small SI engine the Administrator determines is not susceptible to satisfactory testing using procedures specified in paragraph (a)(1) of this section.

(b)(1) The manufacturer may not adjust, repair, prepare, or modify any test engine and may not perform any emission test on any test engine unless this adjustment, repair, preparation, modification and/or test is documented in the manufacturer's engine assembly and inspection procedures and is actually performed by the manufacturer on every production line engine or unless this adjustment, repair, preparation, modification and/or test is required or permitted under this subpart or is approved in advance by the Administrator.

(2) The Administrator may adjust or cause to be adjusted any engine parameter which the Administrator has determined to be subject to adjustment for certification, Production Line Testing and Selective Enforcement Audit testing, to any setting within the physically adjustable range of that parameter, as determined by the Administrator, prior to the performance of any test. However, if the idle speed parameter is one which the Administrator has determined to be subject to adjustment, the Administrator may not adjust it or require that it be adjusted to any setting which causes a lower engine idle speed than would have been possible within the physically adjustable range of the idle speed parameter if the manufacturer had accumulated 12 hours of service on the engine under paragraph (c) of this section, all other parameters being identically adjusted for the purpose of the comparison. The manufacturer may be requested to supply information necessary to establish an alternate minimum idle speed. The Administrator, in making or specifying these adjustments, may consider the effect of the deviation from the manufacturer's recommended setting on emission performance characteristics as well as

the likelihood that similar settings will occur on in-use engines. In determining likelihood, the Administrator may consider factors such as, but not limited to, the effect of the adjustment on engine performance characteristics and information from similar in-use engines.

(c) Service Accumulation. (1) Unless otherwise approved by the Administrator, prior to performing exhaust emission production line testing, the manufacturer may accumulate on each test engine a number of hours of service equal to the greater of 12 hours or the number of hours the manufacturer accumulated during stabilization in the certification process for each engine family. For catalyst-equipped engines, the manufacturer must accumulate a number of hours equal to the number of hours accumulated to represent stabilized emissions on the engine used to obtain certification.

(2) Service accumulation must be performed in a manner using good engineering judgment to obtain emission results representative of production line engines.

(d) Unless otherwise approved by the Administrator, the manufacturer may not perform any maintenance on test engines after selection for testing.

(e) If an engine is shipped to a remote facility for production line testing, and an adjustment or repair is necessary because of shipment, the engine manufacturer must perform the necessary adjustment or repair only after the initial test of the engine, except in cases where the Administrator has determined that the test would be impossible or unsafe to perform or would permanently damage the engine. Engine manufacturers must report to the Administrator, in the quarterly report required by § 90.709(e), all adjustments or repairs performed on test engines prior to each test.

(f) If an engine cannot complete the service accumulation or an emission test because of a malfunction, the manufacturer may request that the Administrator authorize either the repair of that engine or its deletion from the test sequence.

(g) Testing. A manufacturer must test engines with the test procedure specified in subpart E of this part to demonstrate compliance with the applicable FEL (or standard where there is no FEL). If alternate or special test procedures pursuant to regulations at §90.120 are used in certification, then those alternate procedures must be used in production line testing.

(h) Retesting. (1) If an engine manufacturer reasonably determines that an emission test of an engine is invalid because of a procedural error, test equipment problem, or engine performance problem that causes the engine to be unable to safely perform a valid test, the engine may be retested. A test is not invalid simply because the emission results are high relative to other engines of the family. Emission results from all tests must be reported to EPA. The engine manufacturer must also include a detailed explanation of the reasons for invalidating any test in the quarterly report required in §90.709(e). If a test is invalidated because of an engine performance problem, the manufacturer must document in detail the nature of the problem and the repairs performed in order to use the after-repair test results for the original test results. (2) Routine retests may be conducted if the manufacturer conducts the same number of tests on all engines in the family. The results of these tests must be averaged according to procedures of §90.709.

§ 90.708 Cumulative Sum (CumSum) Procedure.

(a) Manufacturers must construct separate CumSum Equations for each regulated pollutant (HC+NOx (NMHC+NOx) and CO) for each engine family. Test results used to calculate the variables in the CumSum Equations must be final deteriorated test results as defined in §90.709(c).

$$C_i = \max[0\ 0R\ (C_{i-1} + X_i - (FEL + F))]$$

where:

C_i = The current CumSum statistic

C_{i-1} = The previous CumSum statistic. Prior to any testing, the CumSum statistic = 0 (i.e. $C_0 = 0$)

X_i = The current emission test result for an individual engine

FEL = Family Emission Limit (the standard if no FEL)

F = 0.25 x σ

After each test, C_i is compared to the action limit, H, the quantity which the CumSum statistic must exceed, in two consecutive tests, before the engine family may be determined to be in noncompliance for a regulated pollutant for purposes of § 90.710.

H = The Action Limit. It is 5.0 x σ, and is a function of the standard deviation, σ.

σ = is the sample standard deviation and is recalculated after each test.

(b) After each engine is tested, the CumSum statistic shall be promptly updated according to the CumSum Equation in paragraph (a) of this section.

(c)(1) If, at any time during the model year, a manufacturer amends the application for certification for an engine family as specified in § 90.122(a) by performing an engine family modification (i.e. a change such as a running change involving a physical modification to an engine, a change in specification or setting, the addition of a new configuration, or the use of a different deterioration factor) with no changes to the FEL (where applicable), all previous sample size and CumSum statistic calculations for the model year will remain unchanged.

(2) If, at any time during the model year, a manufacturer amends the application for certification for an engine family as specified in § 90.122 (a) by modifying its FEL (where applicable) for future production, as a result of an engine family modification, the manufacturer must continue its calculations by inserting the new FEL into the sample size

equation as specified in § 90.706(b)(1) and into the CumSum equation in paragraph (a) of this section. All previous calculations remain unchanged. If the sample size calculation indicates that additional tests are required, then those tests must be performed. CumSum statistic calculations must not indicate that the family has exceeded the action limit for two consecutive tests. Where applicable, the manufacturer's final credit report as required by § 90.210 must break out the credits that result from each FEL and corresponding CumSum analysis for the set of engines built to each FEL.

(3) If, at any time during the model year, a manufacturer amends the application for certification for an engine family as specified in § 90.122 (a) (or for an affected part of the year's production in cases where there were one or more mid-year engine family modifications), by modifying its FEL (where applicable) for past and/or future production, without performing an engine modification, all previous sample size and CumSum statistic calculations for the model year must be recalculated using the new FEL. If the sample size calculation indicates that additional tests are required, then those tests must be performed. The CumSum statistic recalculation must not indicate that the family has exceeded the action limit for two consecutive tests. Where applicable, the manufacturer's final credit report as required by § 90.210 must break out the credits that result from each FEL and corresponding CumSum analysis for the set of engines built to each FEL.

§ 90.709 Calculation and reporting of test results.

(a) Initial test results are calculated following the applicable test procedure specified in § 90.707 (a). The manufacturer rounds these results to the number of decimal places contained in the applicable emission standard expressed to one additional significant figure.

(b) Final test results are calculated by summing the initial test results derived in paragraph (a) of this section for each test engine, dividing by the number of tests conducted on the engine, and rounding to the same number of decimal places contained in the applicable standard expressed to one additional significant figure.

(c) The final deteriorated test results for each test engine are calculated by applying the appropriate deterioration factors, derived in the certification process for the engine to the final test results, and rounding to the same number of decimal places contained in the applicable standard.

(d) If, at any time during the model year, the CumSum statistic exceeds the applicable action limit, H, in two consecutive tests for any regulated pollutant, (HC+NOX (NMHC+NOx) or CO) the engine family may be determined to be in noncompliance and the manufacturer must notify EPA within two working days of such exceedance by the Cum Sum statistic.

(e) Within 30 calendar days of the end of each quarter, each engine manufacturer must submit to the Administrator a report which includes the following information:

(1) The location and description of the manufacturer's or other's exhaust emission test facilities which were utilized to conduct testing reported pursuant to this section;

(2) Total production and sample sizes, N and n, for each engine family;

(3) The FEL (standard, if no FEL) against which each engine family was tested;

(4) A description of the process to obtain engines on a random basis;

(5) A description of the test engines;

(6) For each test conducted;

(i) A description of the test engine, including;

(A) Configuration and engine family identification;

(B) Year, make, and build date;

(C) Engine identification number, and

(D) Number of hours of service accumulated on engine prior to testing;

(ii) Location where service accumulation was conducted and description of accumulation procedure and schedule;

(iii) Test number, date, test procedure used, initial test results before and after rounding, final test results before and after rounding and final deteriorated test results for all exhaust emission tests, whether valid or invalid, and the reason for invalidation, if applicable;

(iv) A complete description of any adjustment, modification, repair, preparation, maintenance, and/or testing which was performed on the test engine, was not reported pursuant to any other paragraph of this subpart, and will not be performed on all other production engines;

(v) A CumSum analysis, as required in § 90.708, of the production line test results for each engine family; and

(vi) Any other information the Administrator may request relevant to the determination whether the new engines being manufactured by the manufacturer do in fact conform with the regulations with respect to which the certificate of conformity was issued.

(7) For each failed engine as defined in § 90.710(a), a description of the remedy and test results for all retests as required by §90.711(g);

(8) The date of the end of the engine manufacturer's model year production for each engine family; and

(9) The following signed statement and endorsement by an authorized representative of the manufacturer:

This report is submitted pursuant to Sections 213 and 208 of the Clean Air Act. This production line testing program was conducted in complete conformance with all applicable regulations under 40 CFR Part 90. No emission-related changes to production processes or quality control procedures for the engine family tested have been made during this production line testing program that affect engines from the production line. All data and information reported herein is, to the best of (Company Name) knowledge, true and accurate. I am aware of the penalties associated with violations of the Clean Air Act and the regulations thereunder. (Authorized Company Representative.)

§ 90.710 Compliance with criteria for production line testing.

(a) A failed engine is one whose final deteriorated test results pursuant to § 90.709(c), for HC + NOx (NMHC+NOx) or CO exceeds the applicable Family Emission Limit (FEL)or standard if no FEL.

(b) An engine family shall be determined to be in noncompliance, if at any time

throughout the model year, the CumSum statistic, C_i, for HC + NOx (NMHC+NOx) or CO, is greater than the action limit, H, for that pollutant, for two consecutive tests.

§ 90.711 Suspension and revocation of certificates of conformity.

(a) The certificate of conformity is suspended with respect to any engine failing pursuant to§ 90.710 (a) effective from the time that testing of that engine is completed.

(b) The Administrator may suspend the certificate of conformity for an engine family which is determined to be in noncompliance pursuant to § 90.710(b). This suspension will not occur before thirty days after the engine family is determined to be in noncompliance and the Administrator has notified the manufacturer of its intent to suspend. During this thirty day period the Administrator will work with the manufacturer to achieve appropriate production line changes to avoid the need to halt engine production, if possible. The Administrator will approve or disapprove any such production line changes proposed to address a family that has been determined to be in noncompliance under this subpart within 15 days of receipt. If the Administrator does not approve or disapprove such a proposed change within such time period, the proposed change shall be considered approved.

(c) If the results of testing pursuant to these regulations indicate that engines of a particular family produced at one plant of a manufacturer do not conform to the regulations with respect to which the certificate of conformity was issued, the Administrator may suspend the certificate of conformity with respect to that family for engines manufactured by the manufacturer at all other plants.

(d) Notwithstanding the fact that engines described in the application for certification may be covered by a certificate of conformity, the Administrator may suspend such certificate immediately in whole or in part if the Administrator finds any one of the following infractions to be substantial:

(1) The manufacturer refuses to comply with any of the requirements of this subpart.

(2) The manufacturer submits false or incomplete information in any report or information provided to the Administrator under this subpart.

(3) The manufacturer renders inaccurate any test data submitted under this subpart.

(4) An EPA enforcement officer is denied the opportunity to conduct activities authorized in this subpart and a warrant or court order is presented to the manufacturer or the party in charge of the facility in question.

(5) An EPA enforcement officer is unable to conduct activities authorized in § 90.705 because a manufacturer has located its facility in a foreign jurisdiction where local law prohibits those activities.

(e) The Administrator shall notify the manufacturer in writing of any suspension or revocation of a certificate of conformity in whole or in part, except that the certificate is immediately suspended with respect to any failed engines as provided for in paragraph (a) of this section.

(f) The Administrator may revoke a certificate of conformity for an engine family after the certificate has been suspended pursuant to paragraph (b) or (c) of this section if

the proposed remedy for the nonconformity, as reported by the manufacturer to the Administrator, is one requiring a design change or changes to the engine and/or emission control system as described in the application for certification of the affected engine family.

(g) Once a certificate has been suspended for a failed engine, as provided for in paragraph (a) of this section, the manufacturer must take the following actions before the certificate is reinstated for that failed engine:

(1) Remedy the nonconformity;

(2) Demonstrate that the engine conforms to the applicable standards (FELs, where applicable) by retesting the engine in accordance with these regulations; and

(3) Submit a written report to the Administrator, after successful completion of testing on the failed engine, which contains a description of the remedy and test results for each engine in addition to other information that may be required by this part.

(h) Once a certificate for a failed engine family has been suspended pursuant to paragraph (b) or (c) of this section, the manufacturer must take the following actions before the Administrator will consider reinstating the certificate:

(1) Submit a written report to the Administrator which identifies the reason for the noncompliance of the engines, describes the proposed remedy, including a description of any proposed quality control and/or quality assurance measures to be taken by the manufacturer to prevent future occurrences of the problem, and states the date on which the remedies will be implemented; and

(2) Demonstrate that the engine family for which the certificate of conformity has been suspended does in fact comply with the regulations of this part by testing as many engines as needed so that the CumSum statistic, as calculated in § 90.708(a), falls below the action limit. Such testing must comply with the provisions of this part. If the manufacturer elects to continue testing individual engines after suspension of a certificate, the certificate is reinstated for any engine actually determined to be in conformance with the Family Emission Limits (or standards if no FEL) through testing in accordance with the applicable test procedures, provided that the Administrator has not revoked the certificate pursuant to paragraph (f) of this section.

(i) Once the certificate has been revoked for an engine family, if the manufacturer desires to continue introduction into commerce of a modified version of that family, the following actions must be taken before the Administrator may issue a certificate for that modified family:

(1) If the Administrator determines that the proposed change(s) in engine design may have an effect on emission performance deterioration, the Administrator shall notify the manufacturer within five working days after receipt of the report in paragraph (h)(1) of this section whether subsequent testing under this subpart will be sufficient to evaluate the proposed change or changes or whether additional testing will be required;

(2) After implementing the change or changes intended to remedy the nonconformity, the manufacturer must demonstrate that the modified engine family does in fact conform with the regulations of this part by testing as many engines as needed from the modified engine family so that the CumSum statistic, as calculated in § 90.708(a) using the newly assigned FEL if applicable, falls below the action limit; and

(3) When the requirements of paragraphs (i)(1) and (i)(2) of this section are met, the Administrator shall reissue the certificate or issue a new certificate, as the case may be, to include that family. As long as the CumSum statistic remains above the action limit, the revocation remains in effect.

(j) At any time subsequent to a suspension of a certificate of conformity for a test engine pursuant to paragraph (a) of this section, but not later than 15 days (or such other period as may be allowed by the Administrator) after notification of the Administrator's decision to suspend or revoke a certificate of conformity in whole or in part pursuant to paragraphs (b), (c), or (f) of this section, a manufacturer may request a hearing as to whether the tests have been properly conducted or any sampling methods have been properly applied.

(k) Any suspension of a certificate of conformity under paragraph (d) of this section shall:

(1) Be made only after the manufacturer concerned has been offered an opportunity for a hearing conducted in accordance with §§ 90.712 and 90.713; and

(2) Not apply to engines no longer in the possession of the manufacturer.

(l) After the Administrator suspends or revokes a certificate of conformity pursuant to this section and prior to the commencement of a hearing under §90.712, if the manufacturer demonstrates to the Administrator's satisfaction that the decision to suspend or revoke the certificate was based on erroneous information, the Administrator shall reinstate the certificate.

(m) To permit a manufacturer to avoid storing non-test engines while conducting subsequent testing of the noncomplying family, a manufacturer may request that the Administrator conditionally reinstate the certificate for that family. The Administrator may reinstate the certificate subject to the following condition: the manufacturer must commit to performing offsetting measures that remedy the nonconformity at no expense to the owners, and which are approved in advance by the Administrator for all engines of that family produced from the time the certificate is conditionally reinstated if the CumSum statistic does not fall below the action limit.

§ 90.712 Request for public hearing.

(a) If the manufacturer disagrees with the Administrator's decision to suspend or revoke a certificate or disputes the basis for an automatic suspension pursuant to § 90.711(a), the manufacturer may request a public hearing.

(b) The manufacturer's request shall be filed with the Administrator not later than 15 days after the Administrator's notification of his or her decision to suspend or revoke, unless otherwise specified by the Administrator. The manufacturer shall simultaneously serve two copies of this request upon the Manager of the Engine Compliance Programs Group and file two copies with the Hearing Clerk for the Agency. Failure of the manufacturer to request a hearing within the time provided constitutes a waiver of the right to a hearing. Subsequent to the expiration of the period for requesting a hearing as of right, the Administrator may, in his or her discretion and for good cause shown, grant the manufacturer a hearing to contest the suspension or revocation.

(c) A manufacturer shall include in the request for a public hearing:

(1) A statement as to which engine configuration(s) within a family is to be the

subject of the hearing; and

(2) A concise statement of the issues to be raised by the manufacturer at the hearing, except that in the case of the hearing requested under § 90.711(j), the hearing is restricted to the following issues:

(i) Whether tests have been properly conducted (specifically, whether the tests were conducted in accordance with applicable regulations under this part and whether test equipment was properly calibrated and functioning);

(ii) Whether sampling plans and statistical analyses have been properly applied (specifically, whether sampling procedures and statistical analyses specified in this subpart were followed and whether there exists a basis for distinguishing engines produced at plants other than the one from which engines were selected for testing which would invalidate the Administrator's decision under § 90.711(c));

(3) A statement specifying reasons why the manufacturer believes it will prevail on the merits of each of the issues raised; and

(4) A summary of the evidence which supports the manufacturer's position on each of the issues raised.

(d) A copy of all requests for public hearings will be kept on file in the Office of the Hearing Clerk and will be made available to the public during Agency business hours.

§ 90.713 Administrative procedures for public hearing.

The administrative procedures for a public hearing requested under this subpart shall be those procedures set forth in the regulations found at §§ 90.513 through 90.516. References in §90.513 to §90.511(j), §90.512(c)(2), §90.511(e), §90.512, §90.511(d), §90.503, §90.512(c) and §90.512(b) shall be replaced with §90.711(j), §90.712(c)(2), §90.711(e), §90.712, §90.711(d), §90.703, and §90.712(c) and §90.712(b), respectively. References to “test orders” in §90.513 can be ignored.

31. Subpart I is amended by revising the heading to read as follows:

Subpart I--Emission-related Defect Reporting Requirements, Voluntary Emission Recall Program, Ordered Recalls

32. Section 90.801 is amended by designating the existing text as paragraph (a) and adding paragraphs (b), (c), (d), (e), (f) and (g) to read as follows:

§ 90.801 Applicability.

* * * * *

(b) Phase 2 engines subject to provisions of subpart B of this part are subject to recall regulations specified in 40 CFR part 85, subpart S, except as otherwise provided in this subsection.

(c) Reference to section 214 of the Clean Air Act in Section 85.1801 (a) is replaced by reference to section 216 of the Clean Air Act.

(d) Reference to section 202 of the Act in section 85.1802(a) is replaced by reference to section 213 of the Act.

(e) Reference to "family particulate emission limits as defined in part 86 promulgated under section 202 of the Act" in 40 CFR 85.1803(a) and 85.1805(a)(1) is

replaced by ”family emission limits as defined in Subpart C of this Part 90 promulgated under section 213 of the Act”.

(f) Reference to "vehicles or engines" throughout part 85, subpart S is replaced by reference to "Phase 2 nonroad small SI engines at or below 19 kw."

(g) Add the following paragraph to 40 CFR 85.1805 (a)(9): A telephone number provided by the manufacturer, which may be used to report difficulty in obtaining recall repairs.

33. Section 90.802 is amended by designating the existing text above the definitions as paragraph (a) and adding a new paragraph (b) above the definitions to read as follows:

§ 90.802 Definitions.

* * * * *

(b)The definitions of 40 CFR Part 85, subpart S, section 1801 also apply to this part.

* * * * *

34. Section 90.803 is amended by revising paragraph (c) to read as follows:

§ 90.803 Emission defect information report.

* * * * *

(c) The manufacturer must submit defect information reports to EPA's Engine Compliance Programs Group not more than 15 working days after an emission-related defect is found to affect 25 or more engines manufactured in the same certificate or model year. Information required by paragraph (d) of this section that is either not available within 15 working days or is significantly revised must be submitted to EPA's Engine Compliance Programs Group as it becomes available.

* * * * *

35. Section 90.805 is amended by revising paragraph (a) to read as follows:

§ 90.805 Reports, voluntary recall plan filing, record retention.

(a) Send the defect report, voluntary recall plan, and the voluntary recall progress report to: Group Manager, Engine Compliance Programs Group, (6403-J), Environmental Protection Agency, Washington, D.C. 20460.

* * * * *

36. A new § 90.808 is added to read as follows

§ 90.808 Ordered recall provisions.

(a) Effective with respect to Phase 2 small SI engines:

(1) If the Administrator determines that a substantial number of any class or category of engines, although properly maintained and used, do not conform to the regulations prescribed under section 213 of the Act when in actual use throughout their useful life (as defined under § 90.105), the Administrator shall immediately notify the manufacturer of such nonconformity and require the manufacturer to submit a plan for remedying the nonconformity of the engines with respect to which such notification is given.

(i) The manufacturer's plan shall provide that the nonconformity of any such engines which are properly used and maintained will be remedied at the expense of the manufacturer.

(ii) If the manufacturer disagrees with such determination of nonconformity and so advises the Administrator, the Administrator shall afford the manufacturer and other interested persons an opportunity to present their views and evidence in support thereof at a public hearing. Unless, as a result of such hearing, the Administrator withdraws such determination of nonconformity, the Administrator shall, within 60 days after the completion of such hearing, order the manufacturer to provide prompt notification of such nonconformity in accordance with paragraph (a)(2) of this section. The manufacturer shall comply in all respects with the requirements of this subpart.

(2) Any notification required to be given by the manufacturer under paragraph (a)(1) of this section with respect to any class or category of engines shall be given to dealers, ultimate purchasers, and subsequent purchasers (if known) in such manner and containing such information as required in subparts I and M of this part.

(3)(A) Prior to an EPA ordered recall, the manufacturer may perform a voluntary emissions recall pursuant to regulations at §90.804 of this part. Such manufacturer is subject to the reporting and recordkeeping requirements of §90.805 of this part.

(B) Once EPA determines that a substantial number of engines fail to conform with the requirements of section 213 of the Act or this part, the manufacturer will not have the option of a voluntary recall.

(b) The manufacturer bears all cost obligation a dealer incurs as a result of a requirement imposed by paragraph (a) of this section. The transfer of any such cost obligation from a manufacturer to a dealer through franchise or other agreement is prohibited.

(c) Any inspection of an engine for purposes of paragraph (a)(1) of this section, after its sale to the ultimate purchaser, is to be made only if the owner of such vehicle or engine voluntarily permits such inspection to be made, except as may be provided by any state or local inspection program.

Subpart J--Exclusion and Exemption of Nonroad Engines from Regulations

37. Section 90.905 is amended by revising paragraph (f) to read as follows:

§ 90.905 Testing exemption.

* * * * *

(f) A manufacturer of new nonroad engines may request a testing exemption to cover nonroad engines intended for use in test programs planned or anticipated over the course of a subsequent one-year period. Unless otherwise required by the Director, Engine Programs and Compliance Division, a manufacturer requesting such an exemption need only furnish the information required by paragraphs (a)(1) and (d)(2) of this section along with a description of the recordkeeping and control procedures that will be employed to assure that the engines are used for purposes consistent with § 90.1004(b).

38. Section 90.906 is amended by revising paragraph (a) introductory text and (a)(3)

introductory text to read as follows:

§ 90.906 Manufacturer-owned exemption and precertification exemption.

(a) Any manufacturer owned nonroad engine, as defined by § 90.902, is exempt from § 90.1003, without application, if the manufacturer complies with the following terms and conditions:

* * * * *

(3) Unless the requirement is waived or an alternative procedure is approved by the Director, Engine Programs and Compliance Division, the manufacturer must permanently affix a label to each nonroad engine on exempt status. This label should:

* * * * *

39. Section 90.909 is amended by revising paragraph (c) to read as follows:

§ 90.909 Export exemptions.

* * * * *

(c) EPA will maintain a list of foreign countries that have in force nonroad emission standards identical to U.S. EPA standards and have so notified EPA. This list may be obtained by writing to the following address: Group Manager, Engine Compliance Programs Group, Engine Programs and Compliance Division (6403-J), Environmental Protection Agency, Washington, D.C. 20460. New nonroad engines exported to such countries must comply with U.S. EPA certification regulations.

* * * * *

40. Section 90.911 is revised to read as follows:

§ 90.911 Submission of exemption requests.

Requests for exemption or further information concerning exemptions and/or the exemption request review procedure should be addressed to: Group Manager, Engine Compliance Programs Group, Engine Programs and Compliance Division (6403J), Environmental Protection Agency, Washington, D.C. 20460.

Subpart K--Prohibited Acts and General Enforcement Provisions

41. Section 90.1003 is amended by revising paragraphs (a)(2), (a)(4)(i), (b)(4), and (b)(5) and by redesignating paragraphs (a)(4)(iii) and (iv) as (iv) and (v) respectively, and by adding new paragraphs (a)(4)(iii) and (b)(6) to read as follows:

§ 90.1003 Prohibited acts.

(a) * * *

(2) (i) For a person to fail or refuse to permit access to or copying of records or to fail to make reports or provide information required under §90.1004.

(ii) For a person to fail or refuse to permit entry, testing or inspection authorized under §§ 90.126, 90.506, 90.705, 90.1004, or 90.1209.

(iii) For a person to fail or refuse to perform tests or to have tests performed as required under §§ 90.119, 90.504, 90.703, 90.1004, 90.1203, or 90.1250.

(iv) For a person to fail to establish or maintain records as required under §§ 90.209, 90.704, 90.805, 90.1004, or 90.1308.

(v) For a person to fail to submit a remedial plan as required under §90.808.

* * * * *

(4)* * *

(i) To sell, offer for sale, or introduce or deliver into commerce, a nonroad engine unless the manufacturer has complied with the requirements of §90.1103.

* * *

(iii) To fail or refuse to comply with the requirements of § 90.808.

* * * * *

(b)* * *

(4) Certified nonroad engines shall be used in all equipment or vehicles that are self-propelled, portable, transportable, or are intended to be propelled while performing their function, unless the manufacturer of the equipment or vehicle can prove that the vehicle or equipment will be used in a manner consistent with paragraph (2) of the definition of nonroad engine in §90.3. Nonroad vehicle and equipment manufacturers may continue to use noncertified nonroad engines built prior to the effective date of the Phase 1 rule until noncertified engine inventories are depleted; further after the applicable effective date of Phase 2 regulations, nonroad vehicle and equipment manufacturers may continue to use Phase 1 engines until Phase 1 engine inventories are depleted. Stockpiling (i.e., build up of an inventory of uncertified engines or Phase 1 engines beyond normal business practices to avoid or delay compliance with the Phase 1 or Phase 2 rules, respectively) will be considered a violation of this section.

(5) A new nonroad engine, intended solely to replace an engine in a piece of nonroad equipment that was originally produced with an engine manufactured prior to the applicable implementation date as described in §§ 90.2, 90.103 and 90.106, or with an engine that was originally produced in a model year in which less stringent standards under this part were in effect, shall not be subject to the requirements of § 90.106 or prohibitions and provisions of paragraphs (a)(1) and (b)(4) of this section provided that:

(i)The engine manufacturer has ascertained that no engine produced by itself or the manufacturer of the engine that is being replaced, if different, and certified to the requirements of this subpart, is available with the appropriate physical or performance characteristics to repower the equipment. Certified engines may be ascertained to lack appropriate physical characteristics where the engine is too large for the engine compartment or can not be connected to existing manifolds, air supplies, water supplies, fuel supplies or controls without modifications that add substantial cost or result in reliability or safety concerns. Certified engines may be ascertained to lack appropriate performance characteristics if the horsepower or rated speed of the engine are significantly different from the original engine to reduce the ability of the equipment to perform its function safely and efficiently; and

(ii) The engine manufacturer or its agent

(A) accepts the old engine in exchange for the new engine and destroys the old engine; or

(B) obtains documentation from the purchaser sufficient to identify the old engine and prove that the purchaser has had the old engine destroyed by a separate party; and

(iii) The engine manufacturer retains records of the engine purchasers and the makes and models of equipment for which the engines are sold. Such records shall be made available to the Administrator upon request and shall be sufficient to enable the

Administrator to determine the quantities of engines being applied to different makes and models of equipment; and

(iv) The engine manufacturer submits a written report to EPA, within 90 days of the end of each model year in which any uncertified replacement engines, or engines certified to an earlier model year's standards, were sold describing the numbers of such engines sold during the model year; and

(v) The engine manufacturer has determined and documented that the engine being replaced was no older than ten (10) years old or ten (10) model years old; and

(vi) The replacement engine is clearly labeled with the following language, or similar alternate language approved in advance by the Administrator:

THIS ENGINE DOES NOT COMPLY WITH FEDERAL NONROAD OR ON-HIGHWAY EMISSION REQUIREMENTS. SALE OR INSTALLATION OF THIS ENGINE FOR ANY PURPOSE OTHER THAN AS A REPLACEMENT ENGINE IN A NONROAD VEHICLE OR PIECE OF NONROAD EQUIPMENT WHOSE ORIGINAL ENGINE WAS NOT CERTIFIED, OR WAS CERTIFIED TO LESS STRINGENT EMISSION STANDARDS THAN THOSE THAT APPLY TO THE YEAR OF MANUFACTURE OF THIS ENGINE, IS A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY; and

(vii) Where the replacement engine is intended to replace an engine built after the applicable implementation date of regulations under this part, but built to less stringent emission standards than are currently applicable, the replacement engine shall be identical in all material respects to a certified configuration of the same or later model year as the engine being replaced.

(6)(i) Regulations elsewhere in this part notwithstanding, for three model years after the phase-in of each set of Phase 2 standards; i.e. through the 2004 model year for Class I nonhandheld engines and through model year 2008 for handheld engines and Class II nonhandheld engines, small volume equipment manufacturers as defined in this part may continue to use, and engine manufacturers may continue to supply, engines certified to Phase 1 standards (or identified and labeled by their manufacturer to be identical to engines previously certified under Phase 1 standards), provided the equipment manufacturer has demonstrated to the satisfaction of the Administrator that no certified Phase 2 engine is available with suitable physical or performance characteristics to power a piece of nonhandheld equipment in production prior to the 2001 model year, or handheld equipment in production prior to the 2002 model year. The equipment manufacturer must also certify to the Administrator that the equipment model has not undergone any redesign which could have facilitated conversion of the equipment to accommodate a Phase 2 engine.

(ii) Regulations elsewhere in this part notwithstanding, for the duration of the Phase 2 rule, equipment manufacturers who certify to the Administrator that annual eligible sales of a particular model of equipment will not exceed 500 for a nonhandheld model in production prior to the 2001 model year, or 2500 for a handheld model in production prior to the 2002 model year, may continue to use in that model, and engine

manufacturers may continue to supply, engines certified to Phase 1 requirements, (or identified and labeled by their manufacturer to be identical to engines previously certified under Phase 1 standards). To be eligible for this provision, the equipment manufacturer must have demonstrated to the satisfaction of the Administrator that no certified Phase 2 engine is available with suitable physical or performance characteristics to power the equipment. The equipment manufacturer must also certify to the Administrator that the equipment model has not undergone any redesign which could have facilitated conversion of the equipment to accommodate a Phase 2 engine.

(iii) An equipment manufacturer which is unable to obtain suitable Phase 2 engines and which can not obtain relief under any other provision of this part, may, prior to the date on which the manufacturer would become in noncompliance with the requirement to use Phase 2 engines, apply to the Administrator to be allowed to continue using Phase 1 engines, through the 2002 model year for Class I engines and through the 2006 model year for Class II, III, IV and V engines, subject to the following criteria:

(A) the inability to obtain Phase 2 engines is despite the manufacturer's best efforts and is the result of an extraordinary action on the part of the engine manufacturer that was outside the control of and could not be reasonably foreseen by the equipment manufacturer; such as canceled production or shipment, last minute certification failure, unforeseen engine cancellation, plant closing, work stoppage or other such circumstance; and

(B) the inability to market the particular equipment will bring substantial economic hardship to the equipment manufacturer resulting in a major impact on the equipment manufacturer's solvency.

(iv)The written permission from the Administrator to the equipment manufacturer shall serve as permission for the engine manufacturer to provide such Phase 1 engines required by the equipment manufacturers under this paragraph (b)(6) of this section. Such engines will not count against an engine manufacturer's final (100%) handheld phase-in percentage requirements, and are excluded from the nonhandheld certification, averaging, banking and trading program. As Phase 1 engines, these engines are exempt from Production Line Testing requirements under subpart H and in-use testing requirements under subpart M of this part.

SUBPART L-- Emission Warranty and Maintenance Instructions

42. Section 90.1103 is amended by the revision of paragraph (b) to read as follows:

§ 90.1103 Emission warranty, warranty period.

* * * * *

(b)(1) The manufacturer of each new Phase 1 small SI engine must warrant to the ultimate purchaser and each subsequent purchaser that the engine is designed, built and equipped so as to conform at the time of sale with applicable regulations under section 213 of the Act, and the engine is free from defects in materials and workmanship which cause such engine to fail to conform with applicable regulations for its warranty period.

(2) The manufacturer of each new Phase 2 small SI engine must warrant to the ultimate purchaser and each subsequent purchaser that the engine is designed, built, and equipped so as to conform for its designated useful life with applicable regulations under

section 213 of the Act, and is free from defects in materials and workmanship which cause such engine to fail to conform with applicable regulations for its warranty period.
* * * * *

43. Section 90.1104 is amended by adding paragraph (e) to read as follows:

§ 90.1104 Furnishing of maintenance instructions to ultimate purchaser.

* * * * *

(e) If a manufacturer includes in an advertisement a statement respecting the cost or value of emission control devices or systems, the manufacturer shall set forth in the statement the cost or value attributed to these devices or systems by the Secretary of Labor (through the Bureau of Labor Statistics). The Secretary of Labor, and his or her representatives, has the same access for this purpose to the books, documents, papers, and records of a manufacturer as the Comptroller General has to those of a recipient of assistance for purposes of section 311 of the Act.

44. A new subpart, Subpart M is added to read:

Subpart M - In-Use Compliance Testing for handheld engines; Bench aging adjustment; In-use durability demonstration testing for nonhandheld engines.

Sec.

Subpart M - In-Use Compliance Testing for handheld engines; Bench aging adjustment; In-use durability demonstration testing for nonhandheld engines.

§ 90.1201 Applicability.

The requirements of subpart M from § 90.1201 through § 90.1249 are applicable to all handheld Phase 2 engines subject to the provisions of subpart A of part 90. The requirements of subpart M, except for those involving in-use credits, in §§ 90.1201, 90.1202, 90.1207, 90.1208, 90.1209 and those from § 90.1250 through § 90.1299 are applicable to nonhandheld Phase 2 engines subject to the provisions of subpart A of part 90.

§ 90.1202 Definitions.

For the purposes of this subpart, except as otherwise provided, the definitions in subparts A and C of this part apply to this subpart.

§ 90.1203 Manufacturer In-use testing program.

(a) Unless otherwise approved by the Administrator, at the time of the first certification for each model year beginning with the 2002 model year, each manufacturer shall submit a schedule to the Administrator of the Phase 2 engine families, their useful lives, their design characteristics (two or four stroke; catalyst or noncatalyst, etc.), and their anticipated eligible sales, it intends to produce, by model year, over the subsequent four year period (the model year now being certified plus the next three model years).

(b) At the time the manufacturer submits the schedule required under paragraph (a) of this section, the manufacturer may include a proposed plan for the Administrator's review and approval for the in-use testing of the current model year and such future

model years as it chooses to include. In such plans, the manufacturer shall propose the in-use testing of individual engine families and engine configurations subject to the requirements of this subpart. Such plans shall include a discussion of the rationale behind the choice of each family and configuration that the Administrator shall use to determine whether the manufacturer's plan meets the objective of generating in-use data on substantially all of a manufacturer's engines within a reasonable time period, and periodically updating that data.

(c) Based upon the schedule required in paragraph (a) of this section, any plan submitted under paragraph (b) of this section, and/or such other information as it has available, the Administrator may annually identify handheld engine families and at the Administrator's option, configurations within families which the manufacturer must then subject to in-use testing as described in this section and in §90.1204. For each model year, the Administrator may identify a number of engine families that is no greater than the number of handheld engine families produced in that model year divided by four and rounded to the nearest whole number. If this calculation produces a value of zero, then the Administrator may identify no more than one engine family for in-use testing for that manufacturer. The Administrator may identify families and configurations under this paragraph by approving the manufacturer's plan described in paragraph (b), or by providing a written directive to the manufacturer.

(d) For each engine family identified by the Administrator under paragraph (c) of this section, engine manufacturers shall perform emission testing of an appropriate sample of in-use engines from each engine family. Manufacturers shall submit data from this in-use testing to the Administrator.

(e) Number of engines to be tested. An engine manufacturer shall test bench aged or field aged in-use engines from each engine family or family and configuration identified by the Administrator. Engines to be tested shall have accumulated a number of hours pursuant to paragraph (g) of this section. The number of engines to be tested by a manufacturer shall be determined by the following method:

(1) A minimum of four (4) engines per family provided that no engine fails any standard. For each failing engine, two more engines shall be tested until the total number of engines equals ten (10).

(2) For small volume engine families for the identified model year or for small volume engine manufacturers, a minimum of two (2) engines per family provided that no engine fails any standard. For each failing engine, two more engines shall be tested until the total number of engines equals ten (10).

(3) If an engine family was certified using carry over emission data and has been previously tested under paragraphs (e)(1) or (e)(2) of this section (and mean results did not exceed any applicable emission standard), then only one engine for that family must be tested. If that one engine fails any pollutant, testing must be conducted as outlined at paragraph (e)(1) or (e)(2) in this section, whichever is appropriate.

(f) At the discretion of the Administrator, an engine manufacturer may test more engines than the minima described in paragraph (e) of this section or may concede failure before testing a total of ten (10) engines.

(g)The Administrator may approve alternatives to manufacturer in-use testing as

described in this subpart, that are designed to determine whether an engine family is in compliance with applicable standards in use, where:

(1) Engines, in their production form, or when removed from the piece of equipment in which they were installed, can not safely or practically be operated and tested pursuant to subparts D and E of this part; or

(2) The Administrator finds that unique or extraordinary circumstances exist that support the need for alternative methods.

(h) Collection of in-use engines. The engine manufacturer shall bench age engines to their full certified useful life as described in subpart B of this part using a bench aging procedure approved by the Administrator under this subpart, or the engine manufacturer shall procure field aged engines which have been operated for at least the engine's useful life. Unless otherwise approved by the Administrator, the manufacturer shall complete emission testing of bench aged engines within 12 calendar months and complete emission testing of field aged engines within 24 calendar months after receiving notice that the Administrator has identified a particular engine family for testing. Field aged engines may be procured from sources associated with the engine manufacturer (i.e., manufacturer established fleet engines, etc.) or from sources not associated with the manufacturer (i.e., consumer-owned engines, independently-owned fleet engines, etc.).

§ 90.1204 Maintenance, procurement, aging and testing of engines.

This section is applicable to handheld engines used for in-use testing pursuant to §90.1203.

(a) An in-use field aged engine must have a maintenance and use history representative of actual in-use conditions.

(1) To comply with this requirement, a manufacturer must obtain information from the end users regarding the accumulated usage, maintenance, operating conditions, and storage of the test engines.

(2) Documents used in the procurement process must be maintained as required in § 90.121.

(3) Each engine of a sample to be field aged shall be assigned a random number. Unless otherwise approved by the Administrator, the engine with the lowest number shall be tested first, followed by the next higher number until testing is completed.

(b)(1) For an engine family which is to be emission tested following bench aging, test engines shall be randomly chosen from normal engine production or storage; or randomly chosen from normal handheld equipment production or storage.

(2) Each engine of a sample to be bench aged shall be assigned a random number. In emission testing of the bench aged engines, the engine with the lowest number shall be tested first, followed by the next higher number until testing is completed.

(c) (1)Bench aged engines must be aged on a dynamometer using a bench aging cycle that has been shown to be capable of representing field aging for the appropriate technology subgroup pursuant to the regulations at §§90.1207 and 90.1208.

(2) Unless otherwise approved by the Administrator, once an engine has begun the bench aging process, it can be terminated and deleted only for catastrophic failure or

safety concerns requiring major engine repair, or because testing of the engine family has been completed based upon lower numbered engines.

(d) The manufacturer may perform minimal set-to-spec maintenance on components of a test engine that are not subject to parameter adjustment. Unless otherwise approved by the Administrator, maintenance to any test engine may include only that which is listed in the owner's instructions for engines with the amount of service and age of the test engine. Documentation of all maintenance and adjustments shall be maintained and retained as required by § 90.121.

(e) At least one valid emission test, according to the test procedure outlined in subpart E of this part, is required for each test engine. Unless otherwise approved by the Administrator, no other emission testing or performance testing may be performed on a test engine prior to the testing at the end of hour accumulation using the test procedure outlined in subpart E of this part.

(f) The Administrator may waive portions or requirements of the test procedure, if any, that are not necessary to determine in-use compliance with applicable emission standards.

(g) If a selected test engine fails to comply with any applicable emission standard, the manufacturer shall make a reasonable effort, including troubleshooting, repairing and retesting, to determine the cause of noncompliance. The manufacturer must report all such reasons of noncompliance with the in-use test report required pursuant to § 90.1205.

§ 90.1205 In-use test program reporting requirements.

(a) The manufacturer shall submit to the Administrator within ninety (90) days of completion of testing for a given model year's engines, all emission testing results generated from the in-use testing program. The following information must be reported for each test engine:

(1) Engine family;

(2) Model;

(3) Engine serial number;

(4) Date of manufacture;

(5) Hours of use;

(6) Date and time of each test attempt;

(7) Results (if any) of each test attempt;

(8) Schedules, descriptions and justifications of all maintenance and/or adjustments performed;

(9) Schedules, descriptions and justifications of all modifications and/or repairs; and

(10) Determinations of noncompliance.

(b) The manufacturer must electronically submit the information required in this section using EPA's electronic information format. The Administrator may exempt manufacturers from this requirement upon written request with supporting justification as to the manufacturer's lack of adequate information processing technology.

(c) The report required in paragraph(a)of this section must include a listing of any

test engines that were deleted from the aging process or testing process and provide a technical justification to support the deletion.

(d) All testing reports and requests for approvals made under this subpart shall be addressed to: Manager, Engine Compliance Programs Group (6403-J), U.S. Environmental Protection Agency, Washington, D.C. 20460.

(e) The Administrator may approve and/or require modifications to a manufacturer's in-use testing programs.

§ 90.1206 Reserved

§ 90.1207 Bench aging adjustment factor testing.

(a) This section is applicable to the bench aging procedures for handheld engines for in-use emission testing and to the bench aging procedures for the full useful life certification testing of nonhandheld sidevalve engines and nonhandheld engines with aftertreatment.

(b) The bench aging adjustment procedure described in §90.1208 shall be used to determine whether a given bench aging cycle, approved for adjustment factor testing by the Administrator, can be used to represent field aged engines for handheld in-use testing under this subpart or for certification of nonhandheld sidevalve engines or nonhandheld engines with aftertreatment; and, if so, what the appropriate adjustment factor should be. If both the IW_B and IW_F as defined in §90.1208 are less than or equal to 20% of the appropriate HC+NOx (NMHC+NOx) standard, then the subject bench aging cycle can be used to generate emissions data for adjustment to represent field aged emissions.

(c) (1) Nothing in this section shall be construed to prohibit different manufacturers from jointly demonstrating that a particular bench aging cycle, approved by the Administrator for adjustment factor testing, may be used to represent the field aged emissions of engines of a particular technology subgroup when they each agree to use the same bench aging cycle, when they each contribute field and bench aged test engines for testing of that technology subgroup under §90.1208, and when they each provide justification satisfactory to the Administrator that the engines can be expected to have similar emission deterioration characteristics and that a reasonable basis exists for such joint testing.

(2) Unless otherwise approved by the Administrator, a manufacturer participating or desiring to participate in a joint adjustment factor testing program may not enter or drop out of the joint program for that technology subgroup after the adjustment factor derived from the program has been used one or more times for certification of nonhandheld engines or in-use testing of handheld engines. When a manufacturer does drop out, the adjustment factor must be recalculated without that manufacturer’s data. When an additional manufacturer is allowed to join, the adjustment factor must be recalculated to reflect the data generated by the new manufacturer’s engines.

(d) Field aging of engines shall be performed in representative equipment in the hands of residential customers, or professional users or in manufacturers’ fleets, except that a minimum of one third of the field aged engines but not less than one engine for a

given engine family or technology subgroup, shall be aged in individual customer usage or in fleets where the engine manufacturer does not carry out or exercise control over the engines' maintenance or limit their usage such that the engines are not used in a way that is representative of typical in-use engines.

(e) For each engine family or technology subgroup for which a manufacturer desires to use bench aging, the manufacturer or group of manufacturers, as applicable, shall propose to the Administrator the bench aging cycle and an engine aging plan it intends or they intend to use to demonstrate the appropriateness of such cycle to represent field aged engines. Such proposals may be made up to 48 months prior to the start of a given model year. EPA shall reject such proposed aging cycles and/or engine aging plans in writing, within 90 days of receipt, or they shall be considered approved for adjustment factor testing pursuant to this section and §90.1208. Such proposals shall include:

(1) A detailed description of the engine families a cycle is intended to cover, a justification satisfactory to the Administrator that the engines can be expected to have similar emission deterioration characteristics, a justification of the appropriateness of the subject cycle to represent field aging of the engines the cycle is intended to cover and data sufficient for the Administrator to ascertain whether the bench aging cycle has been previously determined to represent field aging for any other engine family under the provisions of this section and §90.1208;

(2) A detailed description of the proposed bench aging cycle including, but not limited to, such parameters as duration at each throttle setting, sequencing of throttle changes, loading and load changes, hot starts and cold starts, idles, acceleration times, presence of accessory loads, periods of shutdown and other factors as the Administrator may require;

(3) A description of each engine to be aged in the field and on the bench, including make, model, engine family, displacement, power rating, rated speed and other such information as the Administrator may require to enable the Administrator to determine whether such engines are appropriate for evaluating the bench aging cycle for the engine families or technology subgroup described in paragraph(e)(1) of this section;

(4) A description of the way in which individual engines will be selected, uniquely identified and tracked for both bench and field aging and for subsequent emission testing;

(5) A description of the method by which each engine selected for field aging will be aged, the procedures for determining and carrying out appropriate engine maintenance during field aging and bench aging, a description and rationale for any maintenance the manufacturer proposes to perform additional to routine maintenance described in the maintenance schedule provided to the purchaser, and a description of records that will be kept of both bench and field engine operation and maintenance; and

(6) The location(s) of the facilities or sites at which each bench and field aged engine will be aged and tested.

(f) Upon approval by the Administrator of the bench aging cycle for evaluation testing and the engine aging plan, the manufacturer shall conduct hour accumulation to the full regulatory useful life of the engines according to the approved engine aging plan using the approved bench aging cycle. Such aging shall be followed by emission testing

pursuant to the requirements of Subpart E of this part. At its option, the manufacturer may age handheld commercial engines to 75% of their regulatory useful life for bench aging adjustment testing.

(g) Handheld engines aged for adjustment factor testing pursuant to the requirements of this section may not be used in the Manufacturer In-use Test Program required under §90.1203.

(h) The Administrator may require that testing under this section and the evaluation of the appropriateness of a bench aging cycle to represent field aging under §90.1208, be repeated for a particular engine family or technology subgroup as often as every five years; except that the Administrator may require that such testing be repeated more frequently in model years prior to the 2006 model year.

(1) The Administrator shall notify a manufacturer or group of manufacturers of the requirement to conduct a bench aging adjustment factor program for a particular engine family or technology subgroup and the period for completion of the program. The time period for completion shall be no less than one year for engines having 500 or 1000 hour useful lives.

(2) Within sixty days of the date of the Administrator's notice, the manufacturer or group of manufacturers shall provide a plan for the Administrator's review and approval meeting the requirements of paragraph (e) of this section including a proposed bench aging cycle and an engine aging plan.

(i) Upon completion of engine aging and testing pursuant to the requirements of this section, engine manufacturers wishing to use bench aging and the adjustment factors calculated pursuant to §90.1208 for in-use emission testing of handheld engines or for certification of nonhandheld sidevalve engines or nonhandheld engines with aftertreatment, as applicable, shall provide a report to the Administrator describing the aging and testing conducted under this section and §90.1208. Such report shall be submitted no less than 90 days before the initiation of any such bench aging for in-use or certification testing on the engines and engine families covered by the plan approved under this section. The Administrator shall disapprove the report within 30 days of the date of receipt, or the report shall be automatically approved and the manufacturer may use the bench aging cycle and adjustment factors described in the report for its bench aging activities of the subject families. Such report shall contain the following information about the field/bench adjustment program conducted under this section and §90.1208:

(1) An identifying description of the bench aging cycle sufficient for the Administrator to ascertain which cycle proposed pursuant to this section has been evaluated;

(2) A description of all engines selected for bench aging and field aging for this engine family or technology subgroup, as applicable. Such description shall include the make, model, engine family, displacement, power rating, rated speed, unique identifying description, and other such information as the Administrator may require;

(3) A description of all maintenance performed on each engine during hour accumulation, including a detailed explanation of the need for any maintenance not contained in the maintenance schedule for that model engine provided to engine owners;

(4) A description of how each engine was aged (e.g., bench cycle, field aged–manufacturer fleet, or field aged–individual customer);

(5) A description of any engine selected for aging pursuant to paragraph (i)(2) of this section that was deleted from aging or testing. Include a full explanation of the rationale for deletion;

(6) Tabulations of all emission test results and all inputs and outcomes of the equations found in §90.1208; and

(7) A statement signed by an appropriate official of the manufacturer responsible for compliance of engines with Federal emission requirements that clearly states that all engine selection, aging, maintenance, testing, results calculation, and data evaluation was performed in full accordance with the requirements under this part.

§ 90.1208 Bench aging adjustment; criterion for usage, calculation of adjustment factor, reporting requirements.

(a) Manufacturers desiring to use bench aging prior to performing in-use emission tests on handheld engines or prior to performing certification testing on nonhandheld sidevalve engines or nonhandheld engines with aftertreatment, must first demonstrate that the chosen bench aging cycle appropriately represents field aging as determined under this section and §90.1207. Where a bench aging cycle is shown to appropriately represent field aging under this section and §90.1207, manufacturers shall calculate separate multiplicative bench aging adjustment factors as described in this section to adjust the HC+NOx (NMHC+NOx) and CO emissions of bench aged engines.

(b) A minimum of six engines from each technology subgroup shall be aged and tested. Three of these engines must be aged on the bench and three must be aged in the field.

(c) Separate 90% confidence intervals shall be calculated around the HC+NOx (NMHC+NOx) mean of the bench aged engines and the HC+NOx (NMHC+NOx) mean of the field aged engines. The confidence intervals are independent of each other and are calculated according to the following equations.

(1) For the 90% confidence interval about the mean of the group of bench aged engines, B_{90}:

$$B_{90} = \bar{x}_b \pm IW_b$$

where:

B_{90} = The 90% confidence interval about the mean of the group of bench aged engines

• $_b$ = The HC+NOx (NMHC+NOx) sample mean of the group of bench aged

engines

IW_b = The confidence interval width for the group of bench aged engines as defined by the following equation:

$$IW_b = t_{90} * (s_b / \sqrt{n_b})$$

where:

t_{90} = The appropriate 90% critical point from Student's t table for 90% confidence and n_b-1 observations; this value will decrease as n_b increases

S_b = The HC+NOx (NMHC+NOx) sample standard deviation of the group of bench aged engines, where

$$s_b^2 = 1/(n-1) \sum(X - \bar{x}_b)^2$$

n_b = The number of bench aged engines tested

(2) For the 90% confidence interval about the mean of the group of field aged engines, F_{90} :

$$F_{90} = \bar{x}_f \pm IW_f$$

where:

F_{90} = The 90% confidence interval about the mean of the group of field aged engines

• $_f$ = The HC+NOx (NMHC+NOx) sample mean of the group of field aged engines.

IW_f = The confidence interval width for the group of field aged engines as defined by the following equation:

$$IW_f = t_{90} * (s_f / \sqrt{n_f})$$

where:

t_{90} = The appropriate 90% critical point from Student's t table for 90% confidence and n_b-1 observations; this value will decrease as n_b increases

S_f = The HC +NOx (NMHC+NOx) sample standard deviation of the group of field aged engines, where

$$s_f^2 = 1/(n-1) \sum(X - \bar{x}_f)^2$$

n_f = The number of field aged engines tested

(d) Both IW_b and IW_f must be rounded to the same number of significant digits as contained in the appropriate standard.

(e) If <u>both</u> IW_b and IW_f are less than or equal to 20% of the appropriate HC +NOx (NMHC+NOX) standard as defined by §90.103, then separate Bench Aging Adjustment factors, *AFs*, can be calculated for HC+NOX (NMHC+NOx) and CO as follows:

$$AF = \text{the maximum of } [(\bullet_f / \bullet_b) \text{ or } 1.0]$$

(f) If either or both confidence interval widths IW_b or IW_f is/are greater than 20% of the appropriate standard as defined by §90.103, then the manufacturer may elect to test additional engines included and described in the plan approved under §90.1207 and recalculate the relevant statistics. Additional testing need only be done for the group that exceeds 20% of the appropriate standard. After each additional test, $B_{90,}$ $F_{90,}$ IW_b and IW_f shall be recalculated according to paragraph (c) of this section. Additional engines may be added until such time as the newly calculated confidence interval width (IW_b or $IW_{f,}$ or both) are less than or equal to 20% of the appropriate HC+NOx (NMHC+NOx) standard as defined by §90.103. When both IW_b or IW_f are less than or equal to 20% of the appropriate standard as defined by §90.103, then separate Bench Aging Adjustment Factors, *AFs*, may be calculated for each regulated pollutant according to paragraph (e) of this section.

(g) The adjustment factors calculated under paragraph (e) of this section shall be multiplicatively applied to the appropriate full useful life bench-aged handheld in-use test results or to the appropriate full useful life certification test results of nonhandheld

sidevalve engines or nonhandheld engines with aftertreatment for that engine family or technology subgroup for all manufacturers whose engines were tested in the test program for that technology subgroup, until another bench aging adjustment program is conducted for that family or technology subgroup.

§ 90.1209 Entry and access.

(a) To allow the Administrator to determine whether a manufacturer is complying with the provisions under this subpart, EPA enforcement officers or their authorized representatives, upon presentation of credentials, shall be permitted entry, during operating hours, into any of the following places:

(1) Any facility where engines undergo or are undergoing bench aging, field aging, maintenance, repair, preparation for aging, selection for aging or emission testing.

(2) Any facility where records or documents related to any of activities described in paragraph (a)(1) of this section are kept.

(3) Any facility where any engine that is being tested or aged, was tested or aged or will be tested or aged is present.

(b) Upon admission to any facility referred to in paragraph (a) of this section, EPA enforcement officers or EPA authorized representatives are authorized to perform those activities set forth in §90.705 (b) and also to inspect and make copies of records related to engine aging (service accumulation) and maintenance.

(c) The provisions of paragraphs (c), (d), (e), (f) and (g) of §90.705 also apply to entry and access under this subpart.

§ 90.1210 – 90.1249 Reserved.

§ 90.1250 Field durability and in-use emission performance demonstration program for nonhandheld engines using overhead valve technology.

The testing required pursuant to this section shall be for the purpose of validating the appropriateness of assigned deterioration factors (dfs) or manufacturer determined dfs used pursuant to §90.104-001 to represent the field aged deterioration of overhead valve technology engine families. For brevity, such testing is referred to as df validation testing.

(a) Unless otherwise approved by the Administrator, at the time of the first certification for each model year of Phase 2 engines, each manufacturer shall submit a schedule to the Administrator of the overhead valve technology engine families it intends to produce over the subsequent four year period (the model year now being certified plus the next three model years) including their useful lives, their design characteristics (i.e.; catalyst or noncatalyst, carbureted or fuel injected, etc.), and their anticipated eligible sales.

(b) In the schedule submitted under paragraph (a) of this section, and for the same time period, the manufacturer shall specify the engine families for which it intends to conduct field/bench adjustment testing under §§90.1207 and 90.1208 and shall also specify the engine families for which it intends to compute its own dfs pursuant to §90.104-001(e)(2). Such schedule shall include an estimate of the number of field aged engines that will be emission tested each calendar year for the programs referenced in this

paragraph.

(c) At the time the manufacturer submits the schedule required under paragraph (a) of this section, the manufacturer may include a proposed plan for the Administrator's review and approval of the overhead valve engine families, configurations and associated quantities of engines it plans to field age to full useful life and in-use test during those four years to determine the field aged dfs for engine families for which assigned dfs were used in certification. In such plans, the manufacturer:

(1) may consider the number of field aged engines it plans to test in each calendar year from paragraph (b) of this section and the limit on additional testing of field aged engines that can be assigned by EPA pursuant to paragraph (c) of this section.

(2) shall include a discussion of the rationale for the choice of each family and configuration sufficient to enable the Administrator to determine whether the manufacturer's plan meets the objective of generating in-use data sufficient to validate the appropriateness of the assigned dfs on a substantial portion of a manufacturer's engines within a reasonable time period, and providing for periodic revalidation of the assigned dfs.

(d) If no plan submitted pursuant to paragraph (c) is approved by the Administrator, then, based upon the schedule submitted pursuant to paragraph (a) and other available information, and considering the field aging requirements of §§90.1207, 90.1208 and 90.104-001(e)(2), and any requests from manufacturers to work jointly, the Administrator may provide a schedule of the overhead valve engine families and associated quantities of engines that must be field aged to full useful life and in-use tested during those four years to validate dfs.

(e) EPA shall not require any nonhandheld engine manufacturer to conduct df validation emission testing such that df validation emission testing when added to that testing of field aged engines proposed by the manufacturer under paragraph (b) of this section would require the manufacturer to emission test more than 24 total field aged engines in one calendar year for bench aged field adjustment testing pursuant to §§90.1207 and 90.1208, df generation testing pursuant to §90.104-001(e)(2), and df validation testing pursuant to this section.

(f) The Administrator may provide a schedule for engine testing to validate dfs pursuant to this section by approving the plan submitted by the manufacturer under paragraph (c) of this section, or by a written directive to the manufacturer under paragraph (d) of this section. Unless otherwise approved by the Administrator, for each test engine tested to fulfill the testing schedule provided by the Administrator under paragraphs (c) or (d) of this section, the manufacturer shall conduct a baseline emission test at a number of hours equal to that on the corresponding certification engine followed by field aging to the certified useful life. Each engine shall then be emission tested using the applicable test procedures described in this part measuring all regulated pollutants. Field aging shall be performed in representative equipment in the hands of residential customers, or professional users or in manufacturers' fleets, under usage and conditions representative of typical use.

(1) Unless otherwise approved by the Administrator, equipment shall be considered to be representative if it is of the type (e.g. walk behind lawnmowers or

concrete saws) of equipment into which at least one third of the engines are installed. If no one application of the engine constitutes one third of sales, then equipment shall be representative if it is taken from either or both of the two types of applications having the largest U.S. sales volumes.

(2) Unless otherwise approved by the Administrator, test engines that receive maintenance additional to that recommended to the purchaser in the owner's manual shall not be considered representative of typical use.

(g) No later than 90 days following the end of each model year, each manufacturer subject to this section shall provide a tabulation, by engine family, of all engines undergoing hour accumulation under this regulation, the number of hours accumulated on each engine, the equipment application for each engine and the basis for that choice of equipment. Such tabulation shall include the engine family, the engine identification number assigned for tracking purposes, the type of application, the projected test date and the geographic location (city and state) where hour accumulation is occurring. Such tabulation, or a separate tabulation submitted at the same time, shall contain all in-use test results that have been generated during the preceding model year. Such tabulation shall include the engine family, the engine identification number assigned for tracking purposes, the type of application, the applicable certification deterioration factor and the calculated HC+NOx deterioration factor determined from the testing required in this subpart.

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45. Subpart N is added to read as follows:

Subpart N - In-Use Credit Program for New Handheld Engines

Sec.

Subpart N - In-Use Credit Program for New Handheld Engines

§ 90.1301 Applicability.

Phase 2 handheld engines subject to the provisions of subpart A of part 90 are eligible to participate in the in-use credit program described in this subpart for HC +NOx (NMHC+NOx) and CO emissions.

§ 90.1302 Definitions.

The definitions in subpart A of this part and the definition of "point of first retail sale" from subpart C of this part apply to this subpart. The following definitions shall also apply to this subpart:

Averaging means the exchange of handheld engine in-use emission credits between engine families within a given manufacturer's product line.

Banking means the retention of handheld engine in-use emission credits by the manufacturer generating the emission credits or obtaining such credits through trading, for use in future model year averaging or trading as permitted by these regulations.

Carry-over engine family means an engine family which undergoes certification using carryover test data from previous model years.

Emission credits or in-use credits represent the amount of emission reduction or exceedance, for each regulated pollutant, by a handheld engine family below or above, respectively, the applicable certification standard to which the engine family is certified. Emission reductions below the standard are considered "positive credits," while emission exceedences above the standard are considered "negative or required credits."

Banked credits refer to positive emission credits based on actual applicable production/sales volume as contained in the end of model year in-use testing reports submitted to EPA. Some or all of these banked credits may be revoked if EPA review of the end of model year in-use testing reports or any subsequent audit action(s) uncovers problems or errors.

Trading means the exchange of handheld engine in-use emission credits between manufacturers and/or brokers.

Compliance level for an engine family is determined by averaging the in-use test results from each test engine of the family. The compliance level for an individual configuration may be determined in cases where the Administrator directs the testing of an individual configuration.

§ 90.1303 General provisions.

(a) The in-use credit program for eligible Phase 2 handheld engines is described in this subpart. Participation in this program is voluntary.

(b) Any handheld Phase 2 engine family subject to the provisions of subpart A of this part is eligible to participate in the in-use credit program described in this subpart.

(c) Credits generated and used in the nonhandheld engine certification averaging, banking, and trading program pursuant to the provisions of subpart C are not interchangeable with credits generated and used in the handheld engine in-use credit program. In-use credits under this subpart may not be used to address the emissions of any nonhandheld engine. Nor may nonhandheld certification credits be used to address

any in-use credit need determined under this subpart.

(d) An engine family with a compliance level, as determined by in-use testing pursuant to subpart M and paragraph (h) of this section, below the applicable standard to which the engine family is certified may generate emission credits for averaging, banking, or trading in the in-use credit program.

(e) Positive credits generated in a given model year may be used in that model year and/or in any subsequent model year during the Phase 2 program.

(f) A manufacturer of an engine family with a compliance level exceeding the applicable standard to which the engine family is certified, may, prior to the date of the report required under paragraph (i) of this section, use previously banked credits, purchase credits from another manufacturer, or perform additional testing pursuant to paragraph (h) of this section to address (as calculated elsewhere in this subpart) the associated credit deficit (negative credits or a need for credits).

(g) In the case of in-use testing of engine families that were certified using carry-over data, and in the absence of other applicable test data acceptable to the Administrator, the test results from one model year's testing shall apply to up to four years of production of that family: the model year tested, the next model year (if carried over to that year), and one or two previous model years (if carried over from the previous year or the two previous years, respectively). In use credits shall be generated or used, as appropriate.

(h) A manufacturer must notify EPA of plans to test additional engine families beyond those identified by EPA pursuant to regulations in subpart M for the in-use testing program. Such notice must be submitted 30 days prior to initiation of service accumulation. If the additional testing discovers an engine family to be in noncompliance with the applicable standard, the testing must be treated as if it were a failure of the normal in-use testing requirement of an engine family. If the additional testing shows the engine family to be in compliance with the applicable standard, in-use credits may be generated subject to the provisions of this subpart.

(i) Manufacturers must demonstrate a zero or positive credit balance under the in-use credit program for all regulated pollutants for a particular model year within 90 days of the end of the in-use testing of that model year's engine families. At that time manufacturers must file a report with EPA pursuant to §90.1309.

(j) Manufacturers shall maintain separate balances for HC+NOx (NMHC+NOx) and CO credits. HC+NOx and NMHC+NOx credits are interchangeable with each other but not with CO credits.

§ 90.1304 Averaging.

(a) A manufacturer may use averaging across engine families to demonstrate a zero or positive credit balance for a model year. Positive credits to be used in averaging may be obtained from credits generated by another engine family of the same model year, credits banked in previous model years, or credits obtained through trading.

(b) Credits used to demonstrate a zero or positive credit balance must be used at a rate of 1.1 to 1.

§ 90.1305 Banking.

(a) A manufacturer of a handheld engine family with an in-use compliance level below the standard to which the engine family is certified for a given model year may bank positive in-use credits for that model year for use in in-use averaging and trading.

(b) A manufacturer may consider credits to be banked, for use in future averaging or trading, 30 days after the submission of the report required by §90.1309(a). During the 30 day period EPA will work with the manufacturer to correct any error in calculating banked credits, if necessary.

§ 90.1306 Trading.

(a) A handheld engine manufacturer may exchange positive in-use emission credits with other handheld engine manufacturers through trading.

(b) In-use credits for trading can be obtained from credits banked for model years prior to the model year of the engine family requiring in-use credits.

(c) Traded in-use credits can be used for averaging, banking, or further trading transactions.

(d) Unless otherwise approved by EPA, a manufacturer that generates positive in-use credits must wait 30 days after it has both completed in-use testing for the model year for which the credits were generated and submitted the report required by § 90.1309(a) before it may transfer credits to another manufacturer or broker.

(e) In the event of a negative credit balance resulting from a transaction, both the buyer and the seller are liable, except in cases involving fraud. Engine families participating in a trade that leads to a negative credit balance may be subject to recall under subparts I and M of this part if the engine manufacturer having the negative credit balance is unable or unwilling to obtain sufficient credits in the time allowed under §90.1303(i).

§ 90.1307 Credit calculation.

For each participating engine family, and for each regulated pollutant (HC+NOx (NMHC+NOx) and CO) emission credits (positive or negative) are to be calculated according to the following equation and rounded to the nearest gram. Consistent units are to be used throughout the equation:

Credits = Sales x (Standard - CL) x Power x Useful life x AF x LF

Where:

Useful Life = the useful life in hours corresponding to the useful life category for which the engine family was certified.

Power = the sales weighted maximum modal power, in kilowatts, as calculated from the applicable federal test procedure as described in this part. This is determined by multiplying the maximum modal power of each configuration within the family by its eligible sales, summing across all configurations and dividing by the eligible sales of the entire family. Where testing is limited to certain configurations designated by the Administrator, the maximum modal power for the individual configuration(s) shall be used.

Sales = the number of eligible U.S. sales, as defined in subpart A, for the engine family or configuration as applicable.

Standard = The applicable emission standard to which the engine family was certified

under subpart B of this part.
CL = compliance level of the in-use testing for the subject pollutant in g/kW-hr.
AF = adjustment factor for the number of tests conducted as determined from the following table, except that when a manufacturer concedes failure before completion of testing as permitted under §90.1203(f), the adjustment factor shall be 1.0.

No. Engines tested	1–5	6-7	8-9	10 or more
Adjustment factor	0.5	0.75	0.9	1.0

LF = Load Factor of 0.85 for test cycle C. For manufacturers using alternative or special test cycles approved by the Administrator, the Load Factor is calculated using the Load Factor formula for nonhandheld engines found in § 90.207.

§ 90.1308 Maintenance of records.

(a) Any manufacturer that is participating in the in-use credit program set forth in this subpart shall establish, maintain, and retain the records required by § 90.209 with respect to its participation in the in-use credit program.

(b) EPA may void ab initio a certificate of conformity for an engine family for which the manufacturer fails to retain the records required under this section or to provide such information to the Administrator upon request.

§ 90.1309 Reporting requirements.

(a) Any manufacturer who participates in the in-use credit program is required to submit an in-use credit report with the end of the model year in-use testing report required under §90.1205 within 90 days of the end of the in-use testing of a given model year's engine families. This report must show the calculation of credits from all the in-use testing conducted by the manufacturer for a given model year's engines. Such report shall show the applications of credits, the trading of credits, the discounting of credits that are used and the final credit balance. Such report shall calculate credit generation or usage for past model years and estimate credit generation or usage for the next model year when carry over families are tested pursuant to §90.1303(g). The manufacturer may submit corrections to such end of model year reports in a final report for a period of up to 270 days after the end of the in-use testing of a given model year's engine families.

(b) The calculation of eligible sales for end-of-year and final reports must be based on the location of the point of first retail sale (for example, retail customer or dealer) also called the final product purchase location. Upon advance written request, the Administrator will consider other methods to track engines for credit calculation purposes that provide high levels of confidence that eligible sales are accurately counted.

(c) Reports shall be submitted to: Manager, Engine Compliance Programs Group (6403-J), U.S. Environmental Protection Agency, SW., Washington, DC 20460.

(d) A manufacturer that fails to submit a timely end of year report as required in paragraph (a) of this section will be considered ineligible to have participated in the in-use credit program.

(e) If EPA or the manufacturer determines that a reporting error occurred on an end of model year report previously submitted to EPA under this subpart, or an engine family in-use testing report submitted to EPA under subpart I, the manufacturer's credits and credit calculations will be recalculated. Erroneous positive credits will be void. Erroneous negative credits may be adjusted by EPA. An update of previously submitted "point of first retail sale" information is not considered an error and no increase in the number of credits will be allowed unless an actual error occurred in the calculation of credits due to an error in the "point of first retail sale" information from the time of the original end of model year report.

§ 90.1310 Request for hearing.

An engine manufacturer may request a hearing on the Administrator’s voiding of an engine family's certificate of conformity under § 90.1308(b) of this subpart. The administrative procedures for a public hearing requested under this subpart shall be those procedures set forth in §§ 90.512, 90.513, 90.514 and 90.515 of this part.